APC-3X65
User Manual

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Warning!

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications.
It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Disclaimer

This information in this document is subject to change without notice. In no event shall Aplex Technology Inc. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.

Packing List

Accessories (as ticked) included in this package are:
☐ AC power cable ☐ Driver & manual CD disc ☐ Other._____(please specify)

Safety Precautions

Follow the messages below to avoid your systems from damage:

- ◆ Avoid your system from static electricity on all occasions.
- ◆ Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- ◆ Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

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Chapter 1 Getting Started

1.1 Specifications

Model No. / Specs	APC-3265	APC-3565	APC-3765
System			
Processor	Intel Atom D2550 1.8GHz		
System Chipset	Intel NM 10 Express Chipset		
System Memory	2 x 204-pin DDR3 SO-DIMM 800/1066MHz Up to 4G (D2550)		
Storage	1 x 2.5” SATA HDD Space 1 x External CF slot, 1 x Slim CD/DVD RW device for option(Not available if CF have been used)		
External I/O Port			
USB	4 x USB 2.0 type A		
Serial/Parallel	1 x RS-232/422/485 selectable default RS-232 DB9 2 x RS-232 DB9 1 x RS-422/485 selectable default RS-485 DB9		
Audio	1 x MIC-in, Line-out phone jack		
Graph	1 x VGA		
Digital I/O	None		
KB/MS	None		
Power	1 x 3 pin DC power connector 1 x Rocker switch for power on/off 1 x 2pin remote power switch 2 x LED light for power and HDD indication		
Expansion Slots	2xPCI expansion (default) 1xPCI and 1x PCIe x1 (option) 1 x Mini PCIe slot on board for Wifi/BT/3G/GPS and antenna (option)		
OS support	Microsoft Windows 7 pro for embedded, Windows embedded standard 7		
LCD			
Display Type	12.1”	15”	17”
Max. Resolution	800x600	1024x768	1280x1024
Max. Color	262K	262K	16.7M
Luminance (cd/m2)	350	400	350
View Angle	140/110	160/145	170/170
Contrast	300:1	800:1	1000:1
Backlight Lifetime	50,000 hrs		

Touch Screen			
Type	Resistive Touch		
Interface	Default USB Optional RS-232		
Light Transmission	80%		
Power Supply			
Power Input	DC 9~32V		
Mechanical			
Construction	413C steel front bezel, 413C steel back cover		
IP Rating	Front bezel IP65		
Mounting	Panel mount		
Dimensions (WxHxD) (mm)	390x264x122.5	409 x 309 x123	457x355x129.4
Net weight(kgs)	6.4	7.4	7.4
Environmental			
Operating Temperature	0℃ to 50℃ Option -20~60 ℃ (with Industrial SSD or CF)		
Storage Temperature	-20℃ to 60℃		
Storage Humidity	10~90% @40゜C non-condensing		
Certificate	CE/FCC Class A		

1.2 Dimensions

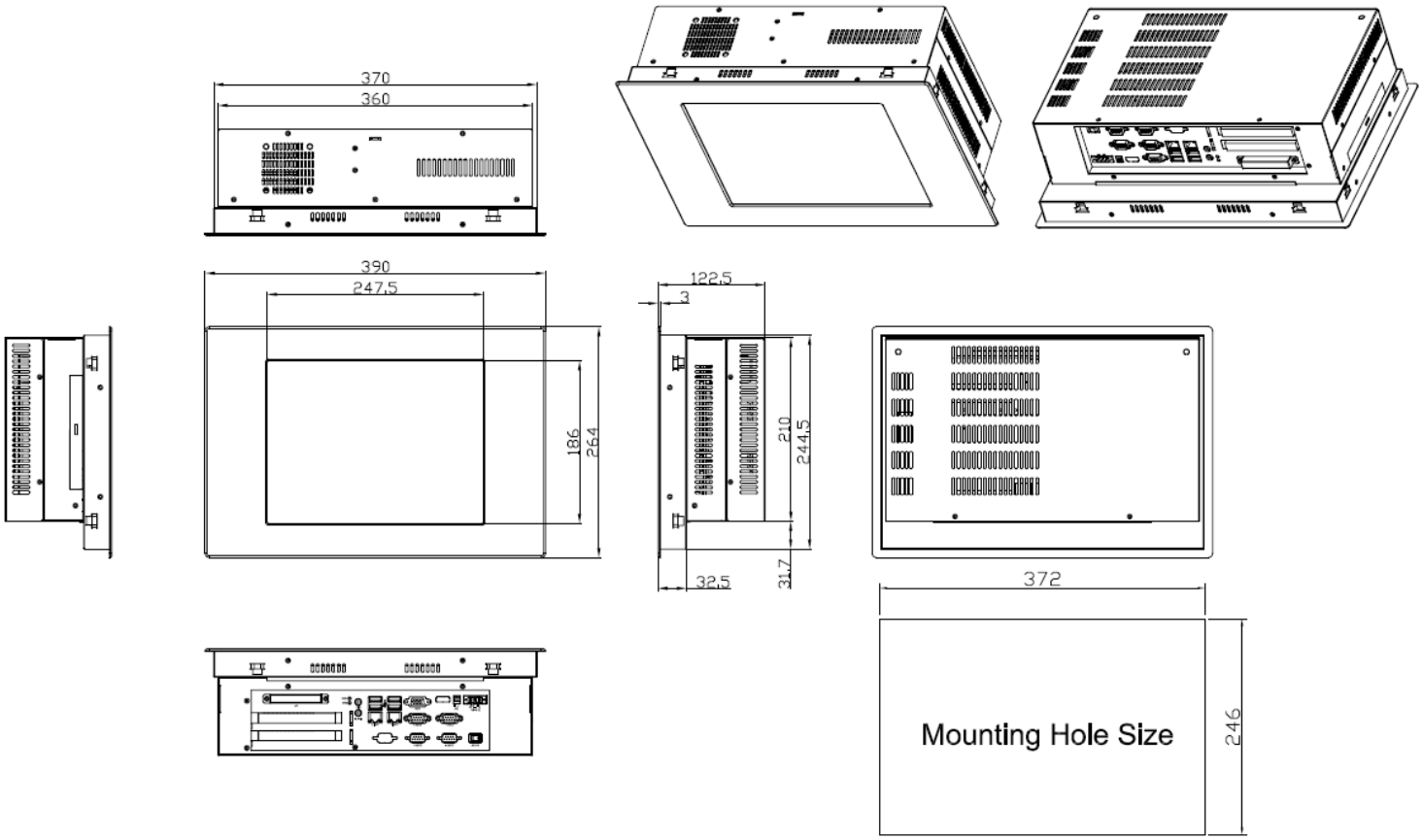


Figure 1.1: Dimensions of APC-3265

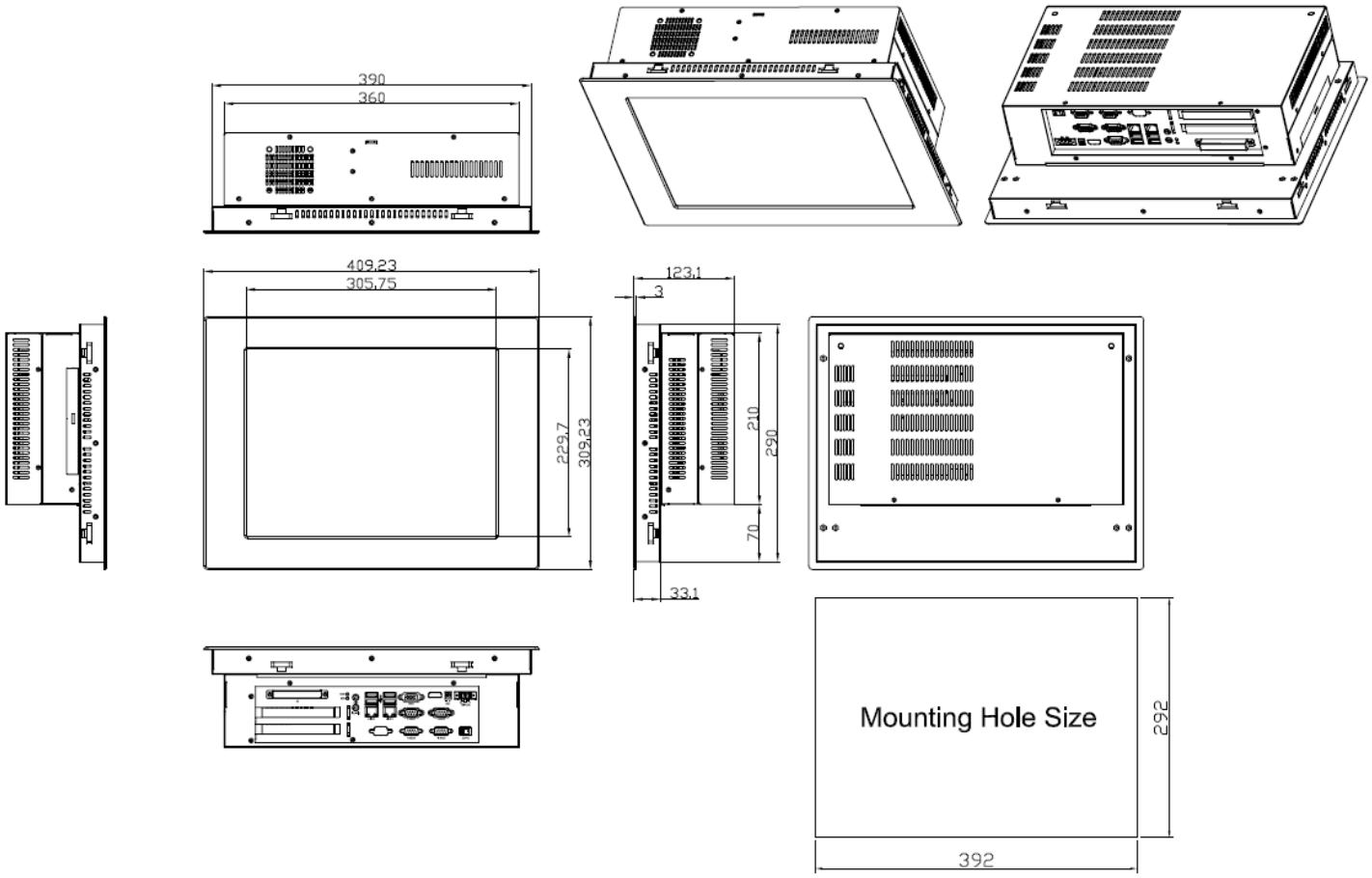


Figure 1.2: Dimensions of APC-3565

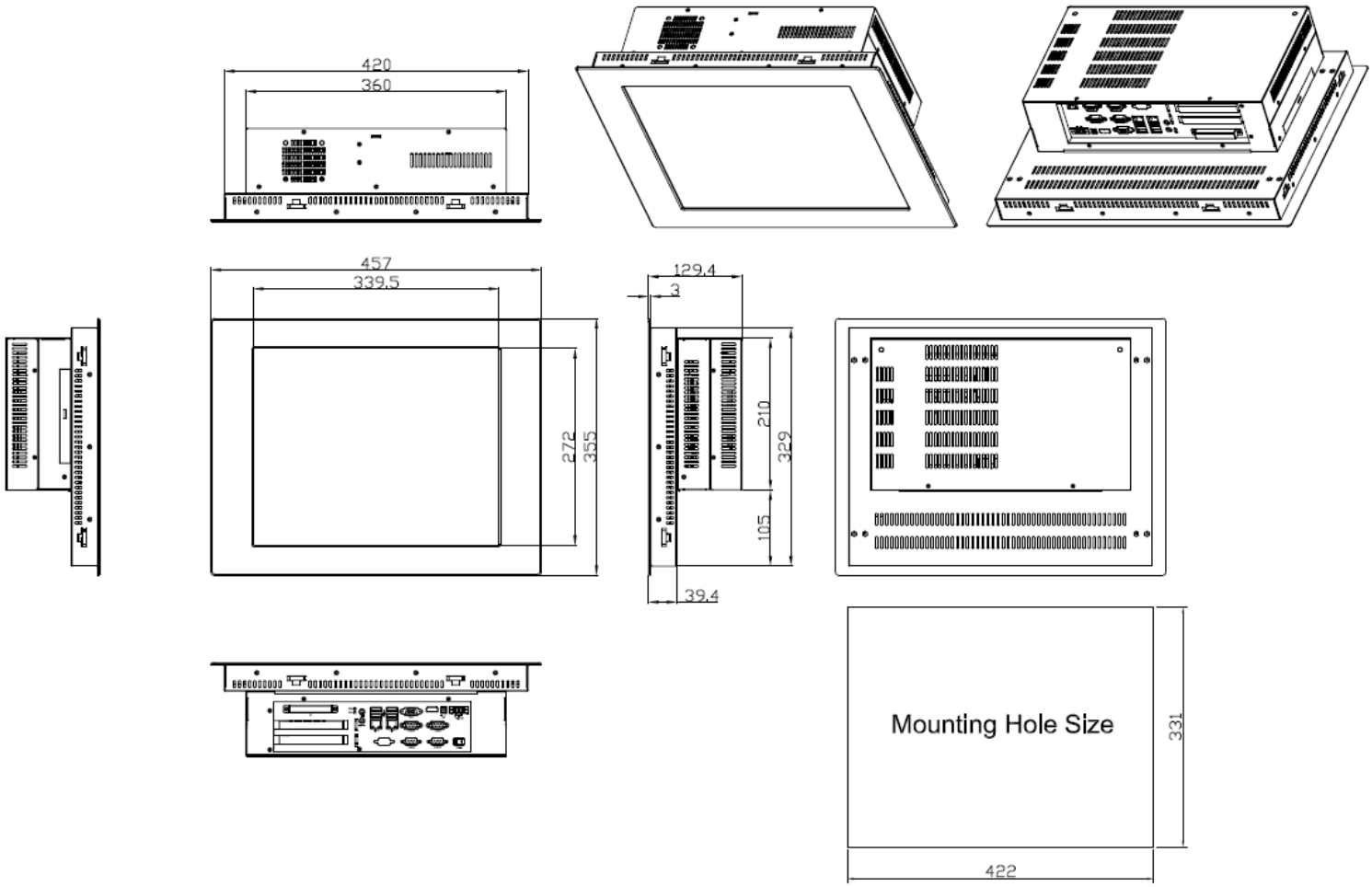


Figure 1.3: Dimensions of APC-3765

1.3 Brief Description of APC-3X65

The APC-3x65 is the fanless and low power consumption panel-mount industrial panel PC with 12.1”/15”/17” TFT LCD. It powered by Intel Atom D2550 1.8GHz. The panel PC has a rich variety of functions and peripherals. It comes with 1 x 2.5” SATA HDD Space 1 x External CF slot for data storage , support DDR3 memory up to 4G, support rich I/O, wide range 9~32V DC input, and also provide 1 x PCIe x 16 slot, it can ensure simplified connectivity to a variety of external peripheral devices. The OS supports windows XP embedded, Windows embedded standard 7. The unit deal for a wide range of applications including digital surveillance, data/image acquisition, factory automation and industrial applications.

Figure 1.4: Front view of APC-3x65

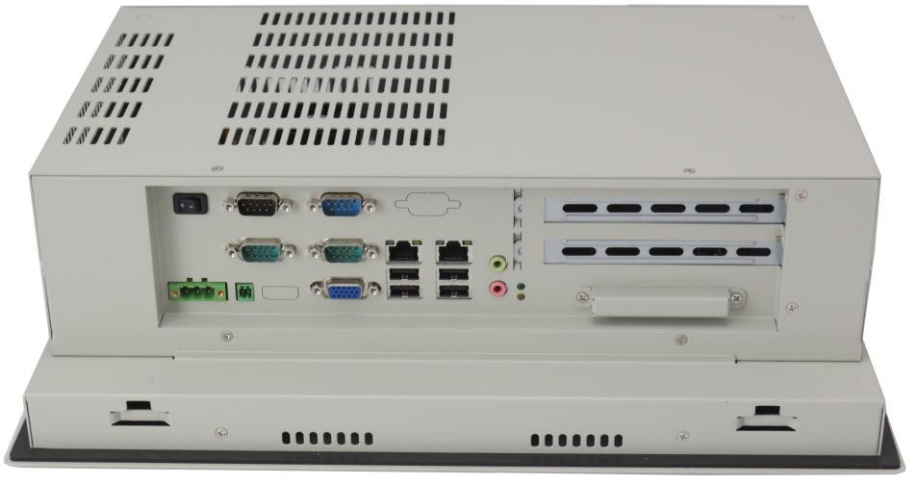


Figure 1.5: Rear view of APC-3265

Figure 1.6: Rear view of APC-3565

Chapter 2 Hardware Installation

2.1 Mainboard Specifications

Introduction

ASB-M7101 is a Mini-ITX industrial motherboard developed on the basis of Intel D2550 and NM10, which provides abundant peripheral interfaces to meet the needs of different customers. Also, it features dual 1000M LAN port, 6-COM port and one Mini PCIE configuration. To satisfy the special needs of high-end customers, PC104+ socket (capable of adjusting IO voltage) richer extension functions. The product is widely used in various sectors of industrial control.

Specifications

Specifications	
Board Size	170mm x 170mm
CPU Support	Intel Atom D2550 /1.86GHz (2cores,10W, onboard) Intel Atom N2800 /1.86GHz (2cores,6.5W, option） Intel Atom N2600 /1.60GHz (2cores,3.5W, option）
Chipset	Intel NM10 Express
Memory Support	2 x SO-DIMM (204pins) D2550：up to 4GB DDRIII 800/1066MHz FSB N2800：up to 4GB DDRIII 1066MHz FSB N2600：up to 2GB DDRIII 800MHz FSB
Graphics	Integrated Intel GMA 3650 (D2550/N2800) Integrated Intel GMA 3600 (N2600)
Display Mode	1 x CRT Port (VGA or VGA_PH) 1 x HDMI Port 1 x LVDS1 (18/24-bit single LVDS, option) 1 x LVDS2 (24-bit dual LVDS, option)
Support Resolution	Up to 1920 x 1200 for CRT Up to 1920 x1200 for HDMI Up to 1440 x 900 for LVDS1 (D2550) Up to 1366 x 768 for LVDS1 (N2600/N2800) Up to 1920 x 1200 for LVDS2 (D2550) Up to 1600 x 1200 for LVDS2 (N2600/N2800)

Dual Display	CRT+LVDS1 CRT+LVDS2 CRT+HDMI LVDS1+HDMI LVDS2+HDMI
Super I/O	Winbond W83627UHG
BIOS	AMIBIOS
Storage	2 x SATA Connector 1 x Compact Flash II Slot for TB-522 or TB-523 (option）
Ethernet	2 x PCIe Gbe LAN by Intel 82583V
USB	4 x USB 2.0 stack ports for external 3 x USB 2.0 box Pin header for MIO1 1 x USB 2.0 internal for mini PCIe
Serial	1 x RS232/422/485 port, DB9 connector for external (COM1) pin 9 w/5V/12V/Ring select 1 x RS232 port, DB9 connector for external (COM2) pin 9 w/5V/12V/Ring select 1 x RS232 header for internal (COM5) 1 x RS232 header for internal (COM6),pin 10 w/5V/12V select I/O Card TB-522/TB-523: 1 x 422/485 select header for internal MIO1 (COM3) 1 x RS232 header for internal MIO1 (COM4)
Digital I/O	8-bit digital I/O by Pin header for MIO2 4-bit digital Input 4-bit digital Output
Battery	Support CR2477 Li battery by 2-pin header
Audio	Support Audio via Realtek ALC662 HD audio codec Support Line-out, MIC by JACK Support Line-in, Line-out, MIC by 2x6-pin header
Keyboard /Mouse	PS2 K/B and Mouse by MIO2 1 x PS/2 keyboard 1 x PS/2 mouse
Expansion Bus	1 x PC 104+ connector (PCI master 4, jumper for +3.3V & 5V select) 2 x PCI-express 1X extend by 4x10 pin socket (PCIe1 option) 1 x mini-PCI-express slot （PCIe1 option：MPCIE or PCIE1X） 1 x CRT 2x6 Pin Header
Power	1 x 3-pin power input connector (Wide range DC+9V~32V)

Management	DC12V output by 2x2 pin Connectors
Switches and LED Indicators	Power on/off switch by TB-522 or TB-523 Reset switch by MIO2 Power LED status by MIO2 HDD LED status by MIO2
External I/O port	2 x COM Ports (COM1/COM2) 4 x USB 2.0 Ports (stack) 2 x RJ45 GbE LAN Ports 1 x CRT DB15 Port 1 x HDMI Port 1 x Audio Ports (mic, line out)
Watchdog Timer	Software programmable 1 – 255 second by Super I/O
Temperature	Operating: -20℃ to 70℃ Storage: -40℃ to 85℃
Humidity	10% - 90%, non-condensing, operating
Power Consumption	12V /1.25A (Intel Atom D2550 processor with 2GB DDR3 DRAM) 12V /1.18A (Intel Atom N2800 processor with 2GB DDR3 DRAM) 12V /0.95A (Intel Atom N2600 processor with 2GB DDR3 DRAM)
EMI/EMS	Meet CE/FCC class A

2.2 Board Dimensions

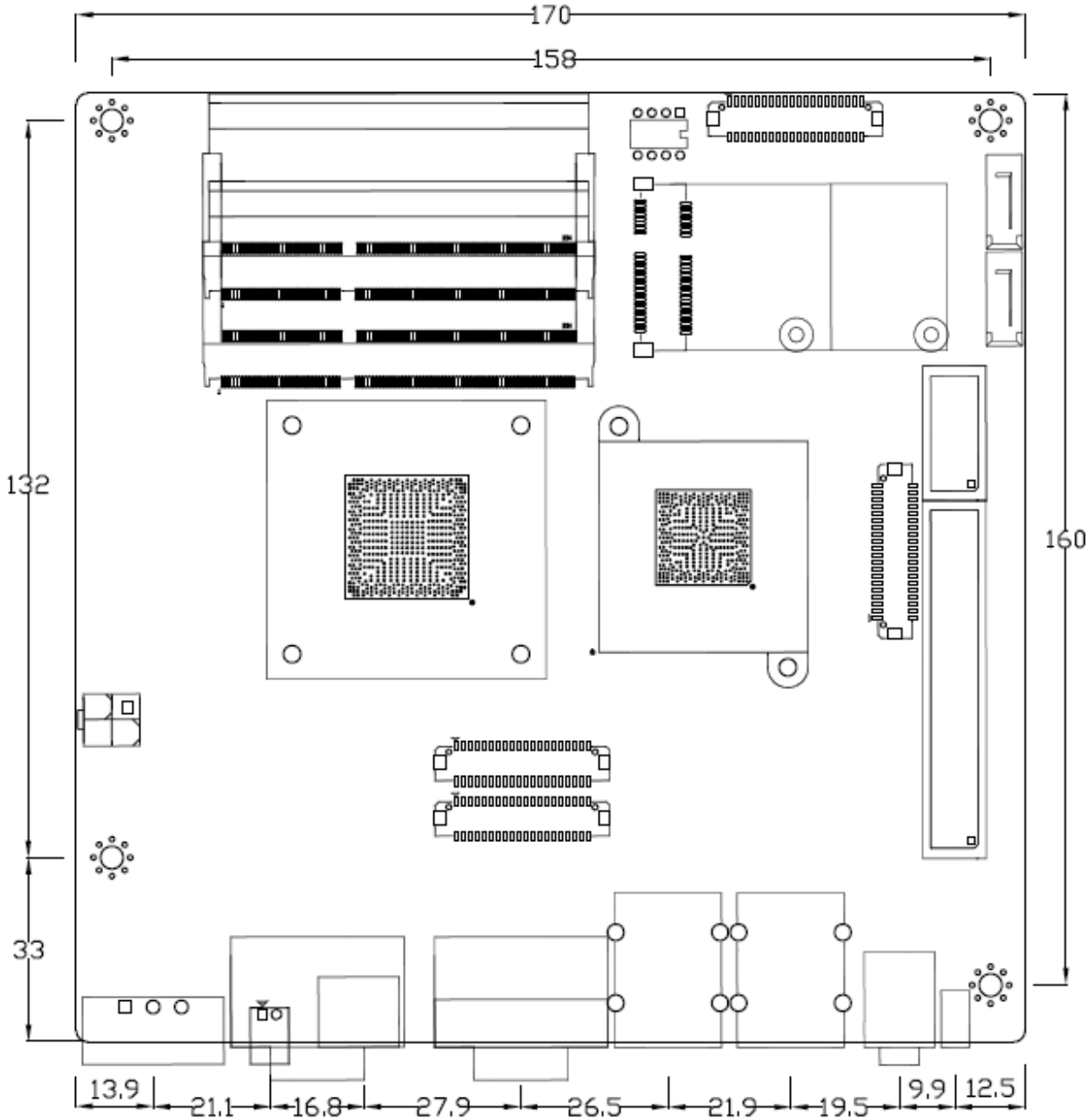


Figure 2.1: Mainboard Dimensions

2.3 Jumpers and Connectors Location

Board Top

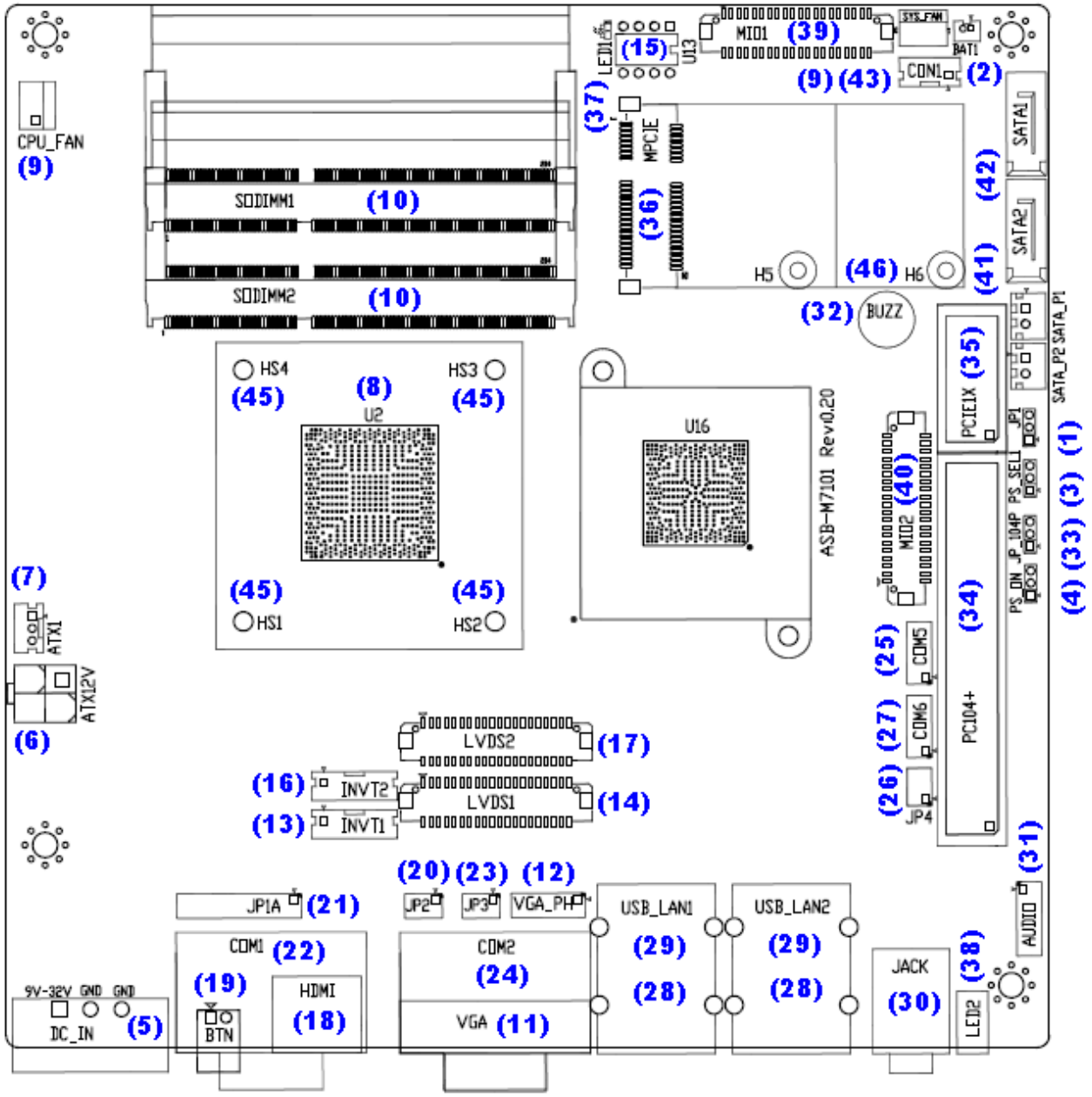


Figure 2.2 Jumpers and Connectors Location-TOP

Board Bottom

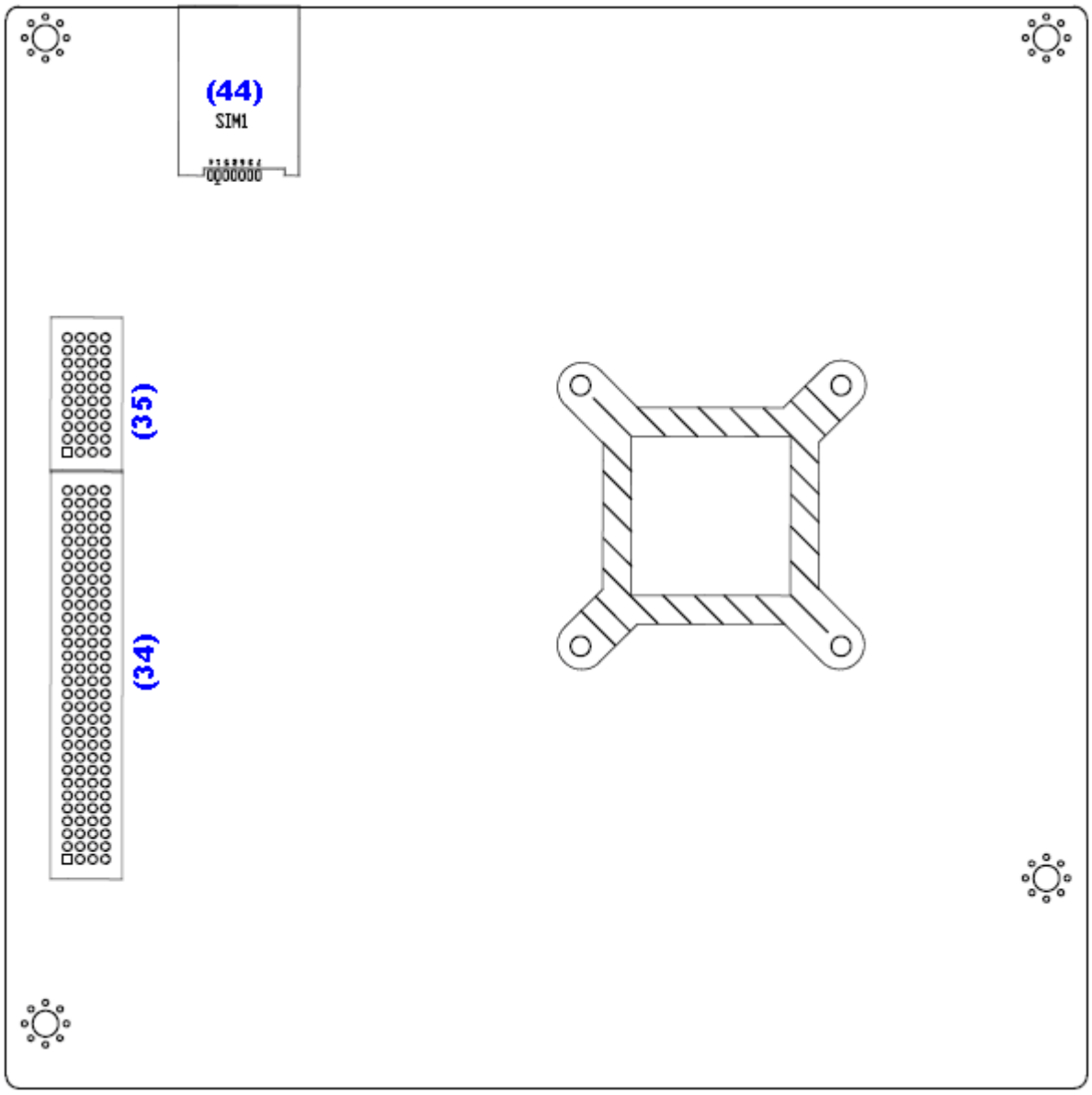


Figure 2.3: Jumpers and Connectors Location- Bottom

2.4 Jumpers Setting and Connectors

1. JP1:

(2.0mm Pitch 1X3 Pin Header)CMOS clear jumper, CMOS clear operation will permanently reset old BIOS settings to factory defaults.

JP1	CMOS
Close 1-2	NORMAL (Default)
Close 2-3	Clear CMOS

Procedures of CMOS clear:

a) Turn off the system and unplug the power cord from the power outlet.

b) To clear the CMOS settings, use the jumper cap to close pins2 and 3 for about 3 seconds then reinstall the jumper clip back to pins open.

c) Power on the system again.

d) When entering the POST screen, press the <F1> or <DEL> key to enter CMOS Setup Utility to load optimal defaults.

e) After the above operations, save changes and exit BIOS Setup.

2. BAT1:

(1.25mm Pitch 1X2 Pin wafer connector) 3.0V Li battery is embedded to provide power for CMOS.

Pin#	Signal Name
Pin1	VBAT
PIN2	Ground

3. PS_SEL1(option):

(2.0mm Pitch 1X3 Pin Header),DC in Power and ATX 12V IN Power jumper setting.

PS_SEL1	Mode
Close 1-2	**DC IN Power (Default)**
Close 2-3	ATX 12V_IN (ATX Power)

4. PS_ON:

(2.0mm Pitch 1X3 Pin Header),ATX Power and Auto Power on jumper setting.

JP2	Mode (DC_IN)
Close 1-2	**Auto Power on (Default)**
Close 2-3 or Open 1-2	ATX Power

5. DCIN:

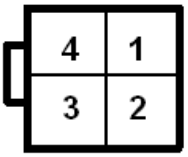
(5.08mm Pitch 1x3 Pin Connector),DC9V ~ DC32V System power input connector。

Pin#	Power Input
Pin1	DC+9V~32V
Pin2	Ground
Pin3	PG

Power Mode	Location : **DCIN** (5.4.5.)	Location: **ATX12V** (5.4.6.)	Location: **ATX1** (5.4.7.)
DC INPUT (Default)	**input** DC9~32V	**output** DC 12V	**NC**
ATX Power (option)	*NC*	*Input (DC12V) ATX Power 2*2P*	*PSON,GND,5VSB ATX Power*

6. ATX12V:

(2x2 Pin Connector),DC12V System power **output** connector.



Pin#	Power output (DCIN)
Pin1	Ground
Pin2	Ground
Pin3	DC+12V
Pin4	DC+12V

7. ATX1 (option):

(2.0mm Pitch 1X3 Pin wafer connector),connect PSON and 5VSB and Ground signal,support ATX Power model. **Reserved**.

Pin#	Signal Name
Pin1	ATX PSON
PIN2	ATX Ground
PIN3	ATX 5VSB

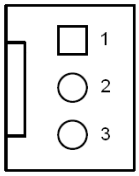
8. U2:

(FCBGA559), onboard CPU .

MODEL	CPU
ASB-M7101T-D2550	Intel Atom D2550 1.86GHz
ASB-M7101B-D2550 (option)	Intel Atom D2550 1.86GHz
ASB-M7101T-N2800 (option)	Intel Atom N2800 1.86GHz
ASB-M7101B-N2800 (option)	Intel Atom N2800 1.86GHz
ASB-M7101T-N2600 (option)	Intel Atom N2600 1.60GHz
ASB-M7101B-N2600 (option)	Intel Atom N2600 1.60GHz

9. CPU_FAN/SYS_FAN:

(2.54mm Pitch 1x3 Pin wafer connector),Fan connector, cooling fans can be connected directly for use. You may set the rotation condition of cooling fan in menu of BIOS CMOS Setup.



Pin#	Signal Name
1	Ground
2	VCC
3	Rotation detection

Note:

Output power of cooling fan must be limited under 5W.

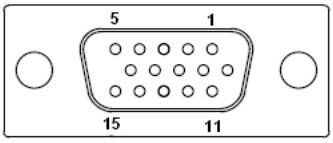
10. SODIMM1/SODIMM2:

(SO-DIMM 204Pin socket), DDRIII memory socket, the socket is located at the Top of the board and supports 204Pin 1.5V DDRIII 800/1066MHz FSB SO-DIMM memory module up to 4GB or 2GB.

MODEL	Socket	Memory
ASB-M7101-D2550	SODIMM1/SODIMM2	Up to 4GB
ASB-M7101-N2800	SODIMM1/SODIMM2	Up to 4GB
ASB-M7101-N2600	SODIMM1	Up to 2GB

11. VGA:

(CRT DB15 Connector),Video Graphic Array Port, provide high-quality video output. **they can not work at the same time for VGA and VGA_PH**.



12. VGA_PH(option):

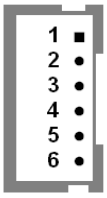
(CRT 2.0mm Pitch 2X6 Pin Header), Video Graphic Array Port, Provide 2x5Pin cable to VGA Port, **they can not work at the same time for VGA and VGA_PH**.

Signal Name	Pin#	Pin#	Signal Name
CRT_RED	1	2	Ground
CRT_GREEN	3	4	Ground
CRT_BLUE	5	6	VGA_EN
CRT_H_SYNC	7	8	CRT_DDCDATA
CRT_V_SYNC	9	10	CRT_DDCCLK
Ground	11	12	Ground

VGA hot plug setting for Windows XP：	
VGA1（Pin Header）	Function
Pin4-Pin6（Close）	VGA Simulation Disabled
Pin4-Pin6（Open）	VGA Simulation Enabled
use the 2.0mm jumper cap to close pin 4 and pin6	

13. INVT1:

(2.0mm Pitch 1x6 Pin wafer connector), Backlight control connector for LVDS1.



Pin#	Signal Name
1	+DC12V
2	+DC12V
3	Ground
4	Ground
5	BKLT_EN
6	BKLT_CTRL

Note:

Pin6 is backlight control signal, support DC or PWM mode, mode select at BIOS CMOS menu.

14. LVDS1:

(1.25mm Pitch 2x20 Connector, DF13A-40DP-1.25V),For 18/24-bit LVDS1 output connector, Fully supported by U2 Intel Processor, the interface features single channel 18/24-bit output. Low Voltage Differential Signaling, A high speed, low power data transmission standard used for display connections to LCD panels.

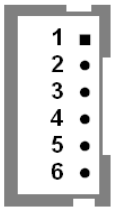
Signal Name	Pin#	Pin#	Signal Name
LVDS1_VDD5	2	1	LVDS1_VDD5
Ground	4	3	Ground
LVDS1_VDD33	6	5	LVDS1_VDD33
NC	8	7	LVDS_TX0_DN
NC	10	9	LVDS_TX0_DP
Ground	12	11	Ground
NC	14	13	LVDS_TX1_DN
NC	16	15	LVDS_TX1_DP
Ground	18	17	Ground
NC	20	19	LVDS_TX2_DN
NC	22	21	LVDS_TX2_DP
Ground	24	23	Ground
NC	26	25	LVDS_CLK_DN
NC	28	27	LVDS_CLK_DP
Ground	30	29	Ground
LVDS_DDC_DATA	32	31	LVDS_DDC_CLK
Ground	34	33	Ground
NC	36	35	LVDS_TX3_DN
NC	38	37	LVDS_TX3_DP
NC	40	39	NC

15. U13:

(2.54mm Pitch 2x4Pin Socket), AT24C02 socket, The EEPROM is set for the resolution of LVDS2. The resolution default is:**1280*1024**. **According to the needs of customers set.**

16. INVT2:

(2.0mm Pitch 1x6 Pin wafer connector), Backlight control connector for LVDS2.



Pin#	Signal Name
1	+DC12V
2	+DC12V
3	Ground
4	Ground
5	BKLT_EN
6	BKLT_CTRL

Note:

Pin6 is backlight control signal, support DC or PWM mode, mode select at BIOS CMOS menu.

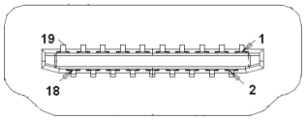
17. LVDS2(option):

(1.25mm Pitch 2x20 Connector, DF13A-40DP-1.25V), For 18/24-bit LVDS2 output connector, Fully supported by Parad PS8625(DP to LVDS), the interface features dual channel 24-bit output. Low Voltage Differential Signaling, A high speed, low power data transmission standard used for display connections to LCD panels.

Signal Name	Pin#	Pin#	Signal Name
LVDS2_VDD5	2	1	LVDS2_VDD5
Ground	4	3	Ground
LVDS2_VDD33	6	5	LVDS2_VDD33
LB_D0_N	8	7	LA_D0_N
LB_D0_P	10	9	LA_D0_P
Ground	12	11	Ground
LB_D1_N	14	13	LA_D1_N
LB_D1_P	16	15	LA_D1_P
Ground	18	17	Ground
LB_D2_N	20	19	LA_D2_N
LB_D2_P	22	21	LA_D2_P
Ground	24	23	Ground
LB_CLKN	26	25	LA_CLKN
LB_CLKP	28	27	LA_CLKP
Ground	30	29	Ground
LVDS2_DDC_DATA	32	31	LVDS2_DDC_CLK
Ground	34	33	Ground
LB_D3_N	36	35	LA_D3_N
LB_D3_P	38	37	LA_D3_P
NC	40	39	NC

18. HDMI:

(HDMI 19P Connector), High Definition Multimedia Interface connector.



19. BTN:

POWER on/off Button, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

20. JP2:

(2.0mm Pitch 2x3 Pin Header),COM1 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM1 port.

JP2 Pin#	Function
Close 1-2	**COM1 RI (Ring Indicator) (default)**
Close 3-4	COM1 Pin9=+5V (option)
Close 5-6	COM1 Pin9=+12V (option)

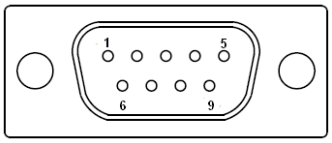
21. JP1A:

(2.0mm Pitch 2x10 Pin Header),COM1 jumper setting, it provides selectable RS232 / RS422/RS485 and hardware flow control serial signal output.

Function	JP1A Pin#
RS232 (Default)	**Close: Pin1-3, Pin2-4, Pin7-9, Pin8-10, Pin13-14**
RS422 (option)	Close: Pin3-5, Pin4-6, Pin9-11, Pin10-12, Pin17-18
RS485 (option)	Close: Pin3-5, Pin4-6, Pin9-11, Pin10-12, Pin15-16,
Hardware Flow Controll Jumper Setting	
JP1A Pin#	Hardware Flow Controll
Pin19-Pin20	Close (Yes) default
Pin19-Pin20	Open (No)

22. COM1:

(Type DB9),Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. COM1 port is controlled by pins No.1~6 of JP2,select output Signal RI or 5V or 12v, For details, please refer to description of JP2.



COM1/RS232 (Default):	
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	**RI/5V/12V (JP2 select Setting)**

COM1/RS422 (option):	
Pin#	Signal Name
1	422_RX+
2	422_RX-
3	422_TX-
4	422_TX+
5	Ground
6	NC
7	NC
8	NC
9	5V/12V (JP2 select Setting)

COM1/RS485 (option):	
Pin#	Signal Name
1	NC
2	NC
3	485-
4	485+
5	Ground
6	NC
7	NC
8	NC
9	5V/12V (JP2 select Setting)

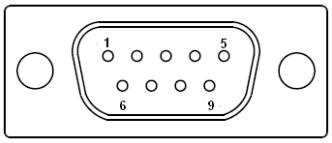
23. JP3:

(2.0mm Pitch 2x3 Pin Header),COM2 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM2 port.

JP3 Pin#	Function
Close 1-2	**COM2 RI (Ring Indicator) (default)**
Close 3-4	COM2 Pin9=+5V (option)
Close 5-6	COM2 Pin9=+12V (option)

24. COM2:

(Type DB9),Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices.



Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	**RI/5V/12V (JP3 select Setting)**

25. COM5:

(2.0mm Pitch 2X5 Pin Header),COM5 Port, standard RS232 ports are provided. They can be used directly via COM cable connection.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

26. JP4:

(2.0mm Pitch 2x3 Pin Header) COM6 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM6 port.

JP4 Pin#	Function
Close 1-2	**COM6 RI (Ring Indicator) (default)**
Close 3-4	COM6 Pin9=+5V (option)
Close 5-6	COM6 Pin9=+12V (option)

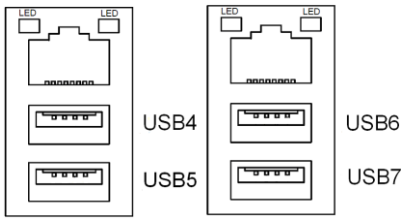
27. COM6:

(2.0mm Pitch 2X5 Pin Header), COM6 Port, standard RS232 ports are provided. They can be used directly via COM cable connection. COM6 port is controlled by pins No.1~6 of JP4,select output Signal 5V or 12v, For details, please refer to description of **JP4**.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
RI/5V/12V (JP4 select Setting)	9	10	NC

28. USB4/USB5/USB6/USB7:

(Double stack USB type A), Rear USB connector, it provides up to 4 USB2.0 ports, speed up to 480Mb/s.

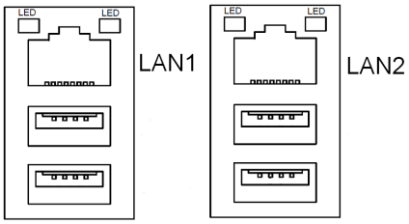


Each USB Type A Receptacle (2 Ports) Current limited value is 1.5A.

If the external USB device current exceeds 1.5A, please separate connectors into different Receptacle.

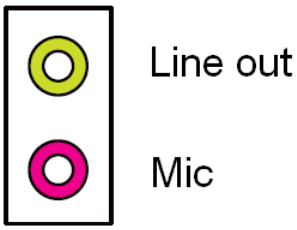
29. LAN1/LAN2:

(RJ45 Connector), Rear LAN port, Two standard 10/100/1000M RJ-45 Ethernet ports are provided. Used Intel 82583V chipset, LINK LED (green) and ACTIVE LED (yellow) respectively located at the left-hand and right-hand side of the Ethernet port indicate the activity and transmission state of LAN.



30. JACK:

(Diameter 3.5mm Double stack Jack), HD Audio port, An onboard Realtek ALC662 codec is used to provide high quality audio I/O ports. Line Out can be connected to a headphone or amplifier, MIC is the port for microphone input audio.



31. AUDIO(option):

(2.0mm Pitch 2X6 Pin Header), Front Audio, An onboard Realtek ALC662 codec is used to provide high-quality audio I/O ports. Line Out can be connected to a headphone or amplifier. Line In is used for the connection of external audio source via a Line in cable. MIC is the port for microphone input audio.

Signal Name	Pin#	Pin#	Signal Name
SPK_OUTL_P	1	2	SPK_OUTR_P
SPK_OUTL_N	3	4	SPK_OUTR_N
FRONT_JD	5	6	LINE1_JD
LINE-IN-L	7	8	LINE-IN-R
MIC2-IN-L	9	10	MIC2-IN-R
Ground	11	12	MIC2_JD

32. BUZZ:

Onboard buzzer.

33. JP_104P:

(2.0mm Pitch 1X3 Pin Header) PC104+ port voltage selection jumper, select voltage for PCI-104 Plus devices. **The default for this jumper is "all open",meaning the user must select the voltage to be used.**

JP_104P Pin#	PC104+ VIO Voltage
All Open	**Default**
Close 1-2	+3.3V PCI Card
Close 2-3	+5V PCI Card

34. PC104+ (option):

(4x30 Pin), PC104 plus connector, it conforms to standard PC104+ specification. Can expand support four PCI devices.

Model	PC104+ Connector
ASB-M7101T-D2550	Top
ASB-M7101B-D2550	Bottom (option)
ASB-M7101T-N2800	Top (option)
ASB-M7101B-N2800	Bottom (option)
ASB-M7101T-N2600	Top (option)
ASB-M7101B-N2600	Bottom (option)

35. PCIE1X (option):

(4x10 Pin), PCIe bus connector, it conforms to standard PCI Express x1 specification. Can expand support two PCIe devices.

PCIe1 Signal for PCIE1X or MPCIE Socket.

PCIe4 Signal for PCIE1X Socket.

Model	PCIE1X Connector
ASB-M7101T-D2550	Top
ASB-M7101B-D2550	Bottom (option)
ASB-M7101T-N2800	Top (option)
ASB-M7101B-N2800	Bottom (option)
ASB-M7101T-N2600	Top (option)
ASB-M7101B-N2600	Bottom (option)

36. MPCIE:

(Socket 52Pin),mini PCIe socket, it is located at the top, it supports mini PCIe devices with USB2.0,Smbus,SIM and PCIe signal. MPCIe card size is 30x30mm or 30x50.95mm.

PCIe1 Signal for PCIE1X or MPCIE Socket.

37. LED1:

LED1：Power LED Status.

38. LED2:

LED2：LED Status. Green LED for Motherboard Standby Power Good status, Yellow LED for HDD status.

39. MIO1:

(DF13-40P Connector),For expand output connector, It provides two RS232 ports or one RS485 port, three USB ports, one power led, one power button, via a dedicated cable connected **to TB-522 MIO1or TB-523 MIO1.**

Function	Signal Name	Pin#	Pin#	Signal Name	Function
COM3 RS422	422RX+	1	2	485+ / 422TX+	COM3 RS422 or 485
	422RX-	3	4	485- / 422TX-	
	Ground	5	6	WLAN_LED+	WLAN LED
	NC	7	8	WLAN_LED-	
	5V_S5	9	10	5V_S5	
COM4 RS232	DCD4-	11	12	RXD4	COM4 RS232
	TXD4	13	14	DTR4-	
	Ground	15	16	DSR4-	
	RTS4-	17	18	CTS4-	
	RI4-	19	20	5V_S5	
USB3	5V_S5	21	22	5V_USB_01	USB0
	USB3_N	23	24	USB0_N	
	USB3_P	25	26	USB0_P	
	Ground	27	28	Ground	
	Ground	29	30	Ground	
USB1	5V_USB_01	31	32	PWR_LED+	Power LED
	USB1_N	33	34	PWR_LED-	
	USB1_P	35	36	MIO_PSON	Power Button
	Ground	37	38	Ground	
	NC	39	40	AUTO_PS_ON	

40. MIO2:

(DF13-40P Connector),Front panel connector.

Function	Signal Name	Pin#	Pin#	Signal Name	Function
H_LED+	HDD_LED	1	2	PWR-LED	P_LED+
	NC	3	4	Ground	P_LED-
	NC	5	6	MIO_PSON-	PSON+
RESET+	RESET	7	8	Ground	PSON-
BUZZER+	BUZZER+	9	10	BUZZER-	BUZZER-
GPIO_IN_1	SIO_GPIO60	11	12	SIO_GPIO20	GPIO_OUT_1
GPIO_IN_2	SIO_GPIO61	13	14	SIO_GPIO21	GPIO_OUT_2
GPIO_IN_3	SIO_GPIO62	15	16	SIO_GPIO22	GPIO_OUT_3
GPIO_IN_4	SIO_GPIO63	17	18	SIO_GPIO23	GPIO_OUT_4
PS2_K/B	Ground	19	20	5V_S5_USB	PS2_Mouse
	PS2_KBDATA	21	22	PS2_MSDATA	
	PS2_KBCLK	23	24	PS2_MSCLK	
	5V_S5_USB	25	26	5V_S5_USB	
	NC	27	28	NC	
	NC	29	30	NC	
	Ground	31	32	Ground	
	5V_S5_USB	33	34	5V_S5_USB	
	NC	35	36	NC	
	NC	37	38	NC	
	Ground	39	40	Ground	

Pin1/Ground: **HDD LED**, They are used to connect hard disk activity LED. The LED blinks when the hard disk is reading or writing data.

Pin2/Pin4: **POWER LED**, They are used to connect power LED. When the system is powered on or under S0/S1 state, the LED is normally on, when the system is under S4/S5 state, the LED is off.

Pin7/Ground: **RESET Button**, They are used to connect reset button. The two pins are disconnected under normal condition. You may short them temporarily to realize system reset.

Pin6/Pin8: **POWER on/off Button**, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

Pin9/Pin10: **BUZZER**, They are used to connect an external buzzer.

Pin11~Pin18: **GPIO IN/GPIO OUT,** General-purpose input/output port, it provides a group of self-programming interfaces to customers for flexible use.

Pin19~Pin24: **PS2 KB/MS,** PS/2 keyboard and mouse port, the port can be connected to PS/2 keyboard and mouse via a dedicated cable for direct used.

Note:

When connecting LEDs and buzzer and GPIO and USB, pay special attention to the signal polarity. Make sure that the connector pins have a one-to-one correspondence with chassis wiring, or it may cause boot up failure.

41. SATA_P1/SATA_P2:

(2.5mm Pitch 1x2 Pin wafer connector), Two onboard 5V output connectors are reserved to provide power for SATA devices.

Pin#	Signal Name
1	+DC5V
2	Ground

Note:

Output current of the connector must not be above 1A.

42. SATA1/SATA2:

(SATA 7P), SATA Connectors, Two SATA connectors are provided, with transfer speed up to 3.0Gb/s.

43. CON1(option):

(2.0mm Pitch 1x4 Pin wafer connector),Smbus Signal connector.

Pin#	Signal Name
1	SMB_CLK_MAIN_IO
2	3.3V
3	Ground
4	SMB_DATA_MAIN_IO

44. SIM1(option):

(SIM Socket 7Pin), Support SIM Card devices.

45. HS1/HS2/HS3/HS4(CPU SCREW HOLES):

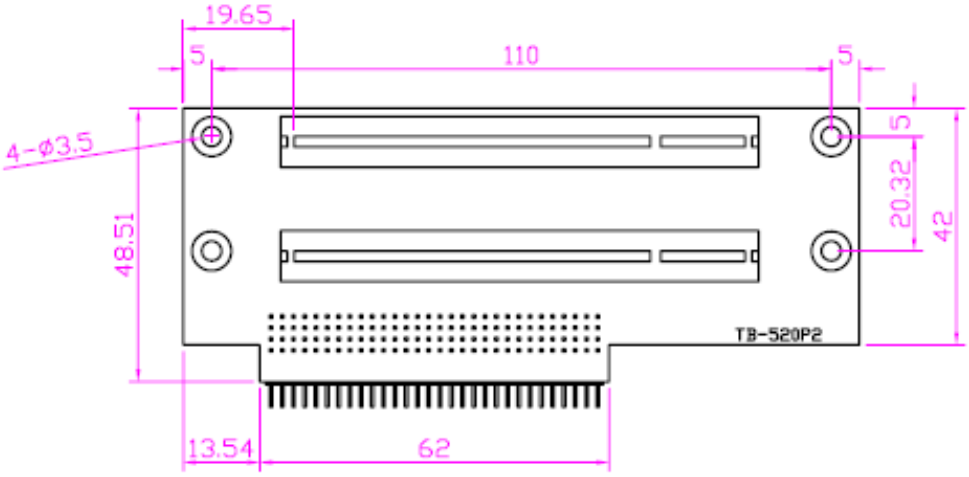
CPU FAN SCREW HOLES, Four screw holes for fixed CPU Cooler assemble.

46. H5/H6:

MPCIE1 SCREW HOLES, H5 for mini PCIE card (30mmx30mm) assemble. H6 for mini PCIE card (30mmx50.95mm) assemble.

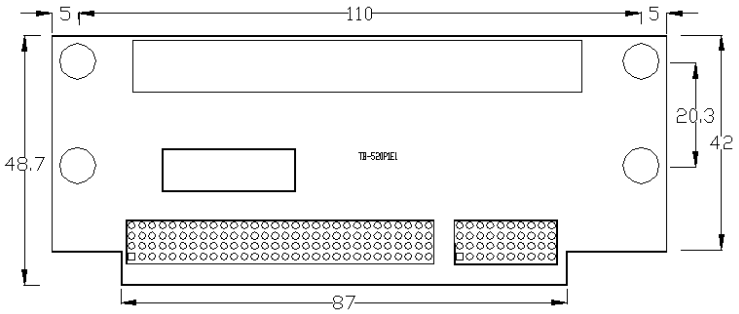
49. TB-520P2:

TB-520P2 connect to ASB-M7101T PC104+ connector**,** PC104+ is located at the top,
It provides two PCI slots.



50. TB-520P1E1:

TB-520P1E1 connect to ASB-M7101T PC104+ and PCIE1X connector**,**PC104+ and PCIE1X are located at the top, It provides one PCI slot and one PCIE slot.



Chapter 3 BIOS Setup

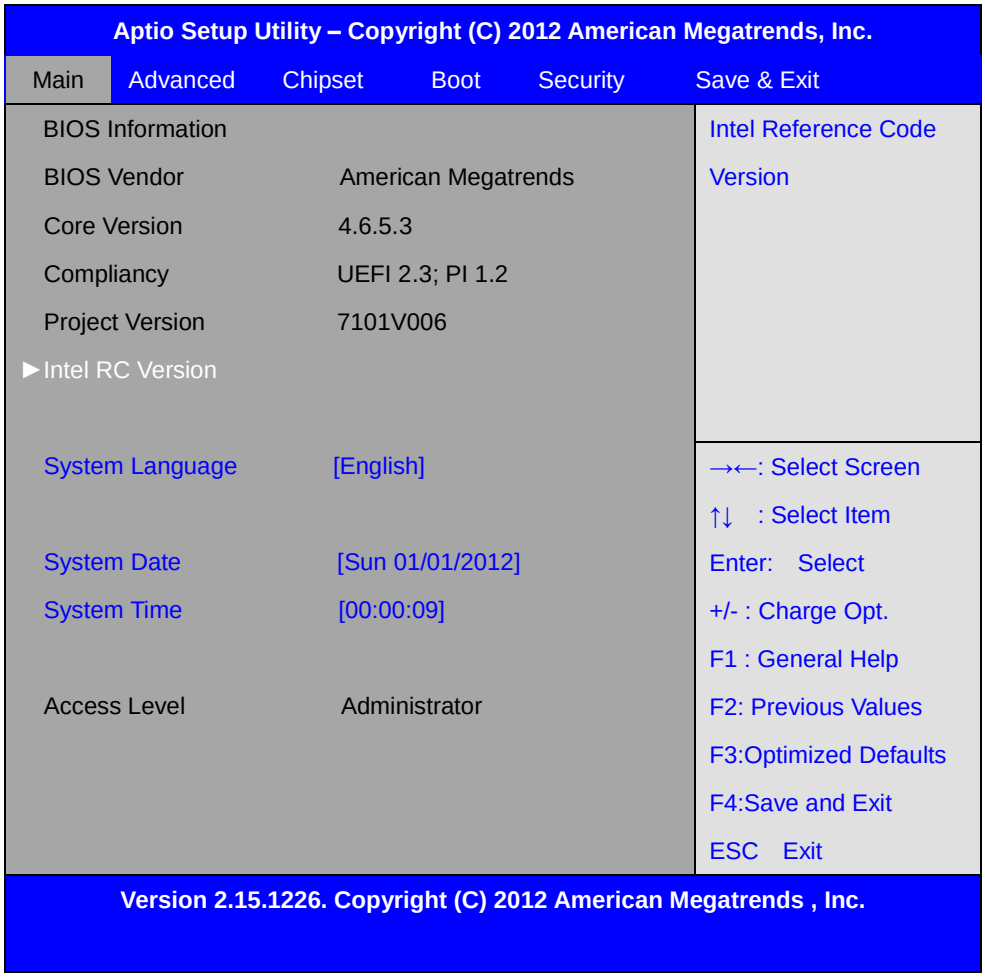
3.1 Operations after POST Screen

After CMOS discharge or BIOS flashing operation,.Press [Delete] key to enter CMOS Setup.

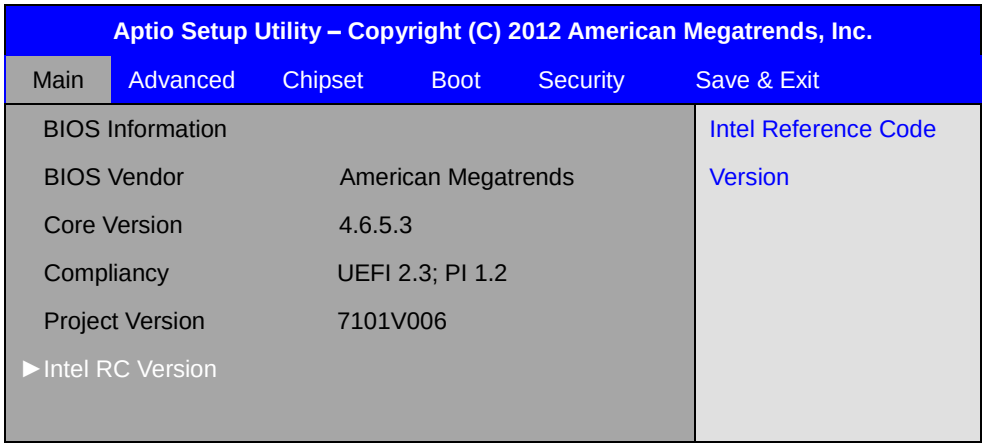
After optimizing and exiting CMOS Setup, the POST screen displayed for the first time is as follows and includes basic information on BIOS, CPU, memory, and storage devices.

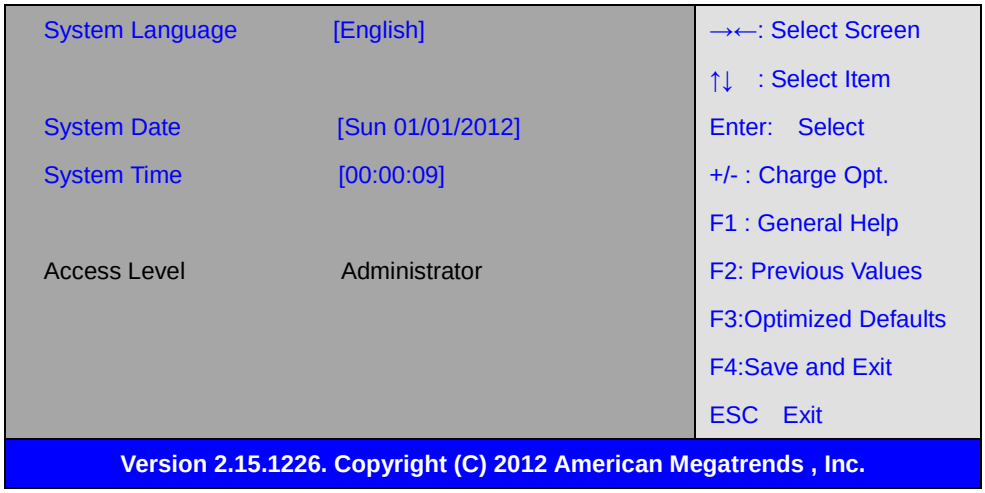
3.2 BIOS SETUP UTILITY

Press [Delete] key to enter BIOS Setup utility during POST, and then a main menu containing system summary information will appear.



3.3 Main Settings





System Time:

Set the system time, the time format is:

Hour : 0 to 23

Minute : 0 to 59

Second : 0 to 59

System Date:

Set the system date, the date format is:

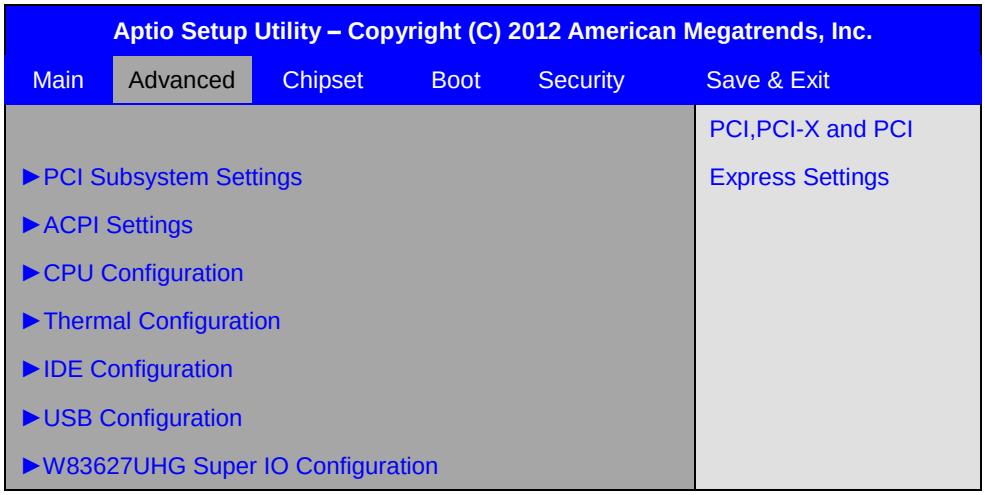
Day: Note that the 'Day' automatically changes when you set the date.

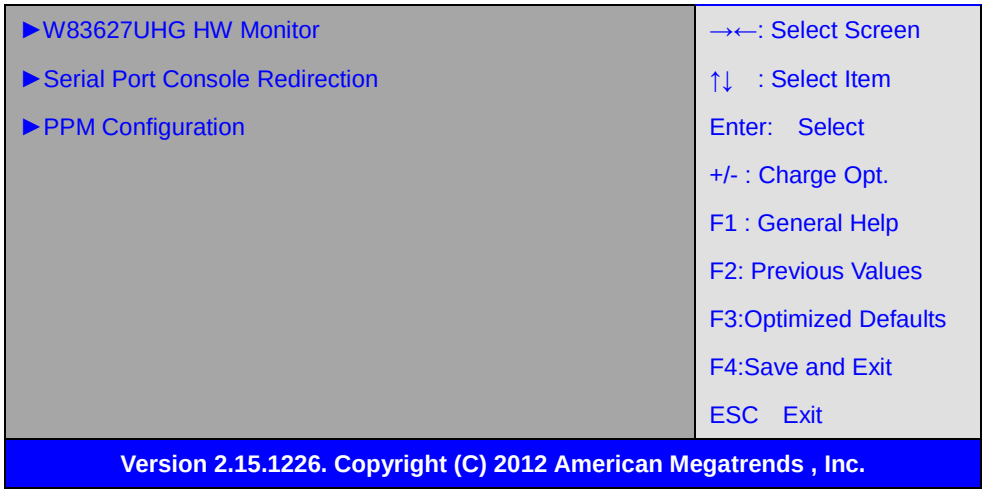
Month: 01 to 12

Date: 01 to 31

Year: 1998 to 2099

3.4 Advanced Settings





3.4.1 PCI Subsystem Settings

PCI Bus Driver Versio V2.05.02

PCI Common Settings:

PCI Latency Timer:

[32 PCI Bus Clocks]

[64 PCI Bus Clocks]

[96 PCI Bus Clocks]

[128 PCI Bus Clocks]

[160 PCI Bus Clocks]

[192 PCI Bus Clocks]

[224 PCI Bus Clocks]

[248 PCI Bus Clocks]

VGA Palette Snoop:

[Disabled]

[Enabled]

PERR# Generation:

[Disabled]

[Enabled]

SERR# Generation:

[Disabled]

[Enabled]

3.4.2 ACPI Settings

Enable ACPI Auto Conf:

[Disabled]

[Enabled]

Enable Hibernation:

[Enabled]

[Disabled]

ACPI Sleep State:

[Both S1 and S3 available for OS to choose from]

[Suspend Disabled]

[S1 only (CPU Stop Clock）]

[S3 only (Suspend to RAM)]

Lock Legacy Resources:

[Disabled]

[Enabled]

S3 Video Repost:

[Disabled]

[Enabled]

3.4.3 CPU Configuration

Processor Type	Intel(R) Atom(TM) CPU
EMT64	Not Supported
Processor Speed	1865 MHz
System Bus Speed	533 MHz
Ratio Status	14
Actual Ratio	14
System Bus Speed	533 MHz
Processor Stepping	30661
Microcode Revision	269
L1 Cache RAM	2x56 k
L2 Cache RAM	2x512 k
Processor Core	Dual
Hyper-Threading	Supported

Hyper-Threading:

[Enabled]

[Disabled]

Execute Disable Bit:

[Enabled]

[Disabled]

Limit CPUID Maximum:

[Disabled]

[Enabled]

3.4.4 Thermal Configuration

CPU Thermal Configuration

DTS SMM

[Disabled]

[Enabled]

Platform Thermal Configuration

Critical Trip Point	[15C]
Active Trip Point Lo	[55 C]
Active Trip Point Hi	[71C]
Passive Trip Point	[95]
Passive TC1 Value	1
Passive TC2 Value	5
Passive TSP Value	10

3.4.5 IDE Configuration

SATA Port0	Not Present
SATA Port1	Not Present

SATA Controller(S):

[Enabled]

[Disabled]

Configure SATA as:

[IDE]

[AHCI]

Misc Configuration for hard disk

3.4.6 USB Configuration

USB Configuration

USB Devices:

1 keyboard

Legacy USB Support:

[Enabled]

[Disabled]

EHCI Hand-off:

[Disabled]

[Enabled]

USB hardware delays a

USB transfer time-out:

[20 sec]

[10 sec]

[5 sec]

[1 sec]

Device reset time-out:

[20 sec]

[10 sec]

[30 sec]

[40 sec]

Device power-up delay

[Auto]

[Manual]

3.4.7 W83627UHG Super IO Ch Configuration

W83627UHG Super IO ch W83627UHG

Serial Port 1 Configuration

Serial Port 2 Configuration

Serial Port 3 Configuration

Serial Port 4 Configuration

Serial Port 5 Configuration

Serial Port 6 Configuration

3.4.8 W83627UHG HW Monitor

PC Health Status

Smart Fan Mode Configuration

System temperature1 : +46 C

System Speed : N/A

CPU Fan Speed : 5000 RPM

VCORE : +1.184 V

+12V : +12.512 V

+3.3V : +3.288 V

+1.5V : +1.528 V

AVCC : +5.170 V

VCC5V : +5.182 V

VSB5 : +5.170 V

VBAT : +3.368 V

3.4.9 Serial Port Console Redirection

COM0

Console Redirection

[Enabled]

[Disabled]

Console Redirection Settings

Serial Port for Out-of-Band Management/

Windows Emergency Management Services (EMS)

Console Redirection

[Disabled]

[Enabled]

Console Redirection Settings

3.4.10 PPM Configuration

PPM Configuration

EIST:

[Enabled]

[Disabled]

CPU C state Report

[Enabled]

[Disabled]

Enhanced C state

[Enabled]

[Disabled]

CPU Hard C4E

[Enabled]

[Disabled]

CPU C6 state

[Enabled]

[Disabled]

C4 Exit Timing

[Fast]

[Default]

[Slow]

C-state POPDOWN

[Enabled]

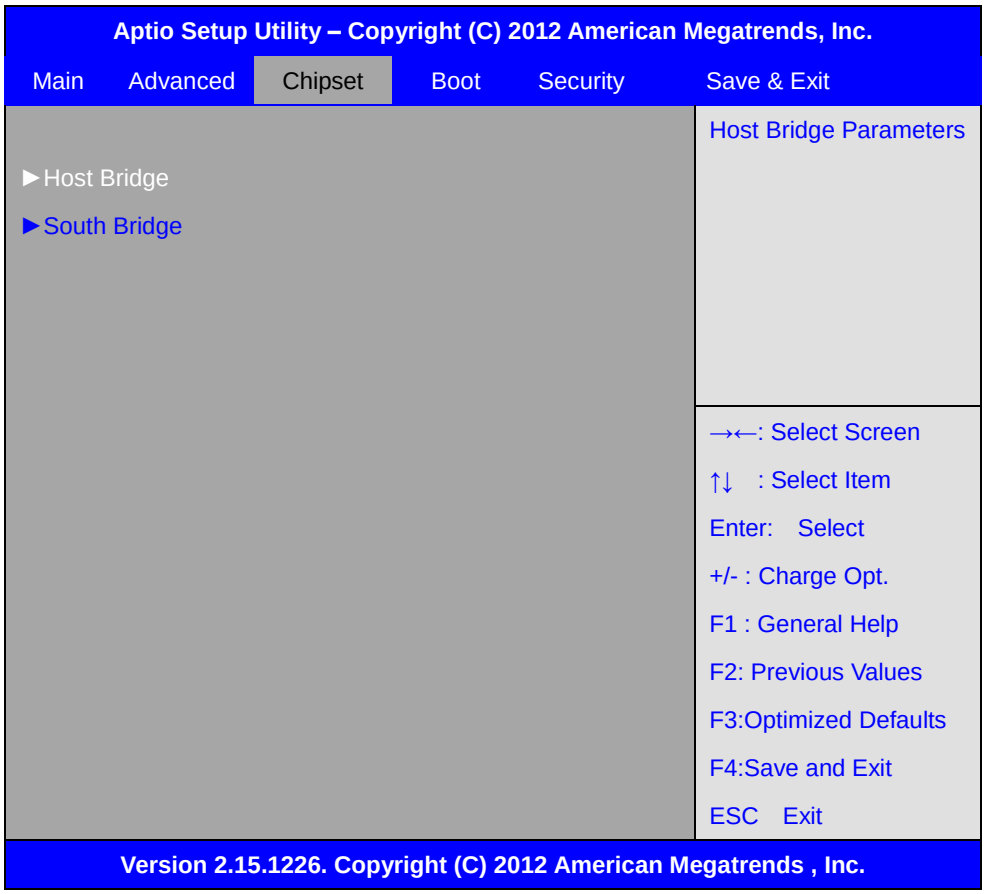
[Disabled]

C-state POPUP

[Enabled]

[Disabled]

3.5 Chipset Settings



3.5.1 Host Bridge

►Memory Frequency and Timing

►Intel IGD Configuration

******* Memory Information *******

Memory Frequency	1067 MHz(DDR3)
Total Memory	2048 MB
DIMM#0	Not Present
DIMM#1	2048 MB

Memory Frequency and Timing

MRC Fast Boot

[Enabled]

[Disabled]

Max TOLUD

[Dynamic]

[1GB]

[1.25GB]
[1.5GB]
[1.75GB]
[2GB]
[2.25GB]
[2.5GB]
[2.75GB]
[3GB]
[3.25GB]

Intel IGD Configuration

IGFX – Boot Type

[VBIOS Default]
[CRT]
[LVDS1]
[LVDS2]
[VGA + LVDS]
[VGA + HDMI]

LCD Panel Type

[VBIOS Default]
[640x480,18bit]
[800x480,18bit]
[800x600,18bit]
[1024x600,18bit]
[1024x768,18bit]
[1280x768,18bit]
[1280x800,18bit]
[1280x1024,18bit]
[1366x768,18bit]
[1024x768,24bit]
[1280x768,24bit]
[1280x800,24bit]
[1280x1024,24bit]
[1366x768,24bit]

Active LFP

[LVDS]
[No LVDS]
[EDP]

IGD Clock Source

[Internal Clock]
[External Clock]

Fixed Graphics Memory

[128MB]

[256MB]

ALS Support

[Disabled]

[Enabled]

Back light Control

[DC]

[PWM]

Backlight Logic

[Positive]

[Negative]

Backlight Control Lev

[Level 8]

[Level 0]

[Level 1]

[Level 2]

[Level 3]

[Level 4]

[Level 5]

[Level 6]

[Level 7]

[Level 9]

[Level 10]

[Level 11]

[Level 12]

[Level 13]

[Level 14]

[Level 15]

LVDS1 Setting:

IGFX – Boot Type: [LVDS1] or [CRT+LVDS]

Active LFP: [LVDS]

LVDS2 Setting:

IGFX – Boot Type: [LVDS2] or [CRT+LVDS]

Active LFP: [EDP]

3.5.2 South Bridge

TPT Devices

PCI Express Root Port 0

PCI Express Root Port 1

PCI Express Root Port 2

PCI Express Root Port 3

DMI Link ASPM Control

[Enabled]

[Disabled]

PCI-Exp. High Priorit

[Disabled]

[Enabled]

High Precision Event Timer Configuration

High Precision Timer

[Enabled]

[Disabled]

SLP_S4 Assertion Widt

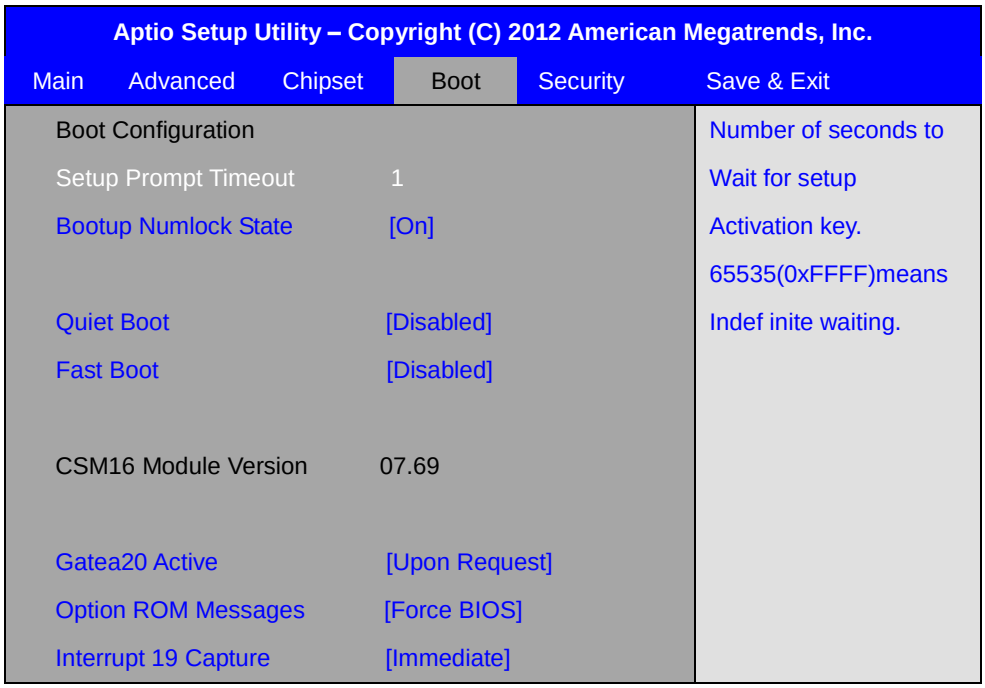
[1-2 Seconds]

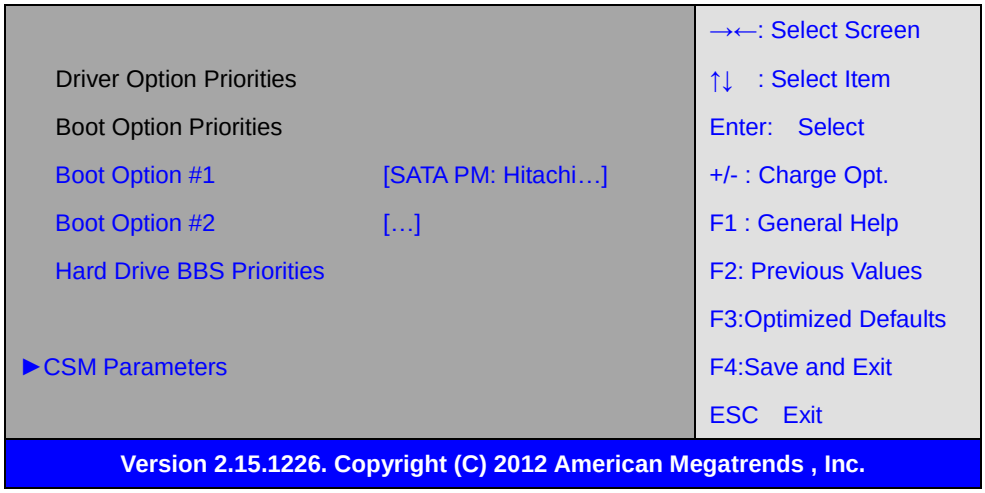
[2-3 Seconds]

[3-4 Seconds]

[4-5 Seconds]

3.6 Boot Settings





Setup Prompt Timeout [1]

Bootup Numlock State

[On]

[off]

Quiet Boot

[Disabled]

[Enabled]

Fast Boot

[Disabled]

[Enabled]

CSM16 Module Version 07.69

Gatea20 Active

[Upon Request]

[Always]

Option ROM Messages

[Force BIOS]

[Keep Current]

Interrupt 19 Capture

[Enabled]

[Disabled]

Boot Option #1

Boot Option #2

……

Sets the system boot order

Hard Drive BBS Priorities [SATA PM:*** …]

Boot Option #1

SATA PM:***…

******

Disabled

CSM Parameters

Launch CSM

[Always]

[Never]

Boot option filter

[UEFI and Legacy]

[Legacy only]

[UEFI only]

Launch PXE OpROM poli

[Legacy only]

[Do not Launch]

[UEFI only]

Launch Storage OpROM

[Legacy only]

[Do not Launch]

[UEFI only]

Launch Video OpROM po

[Do not Launch]

[UEFI only]

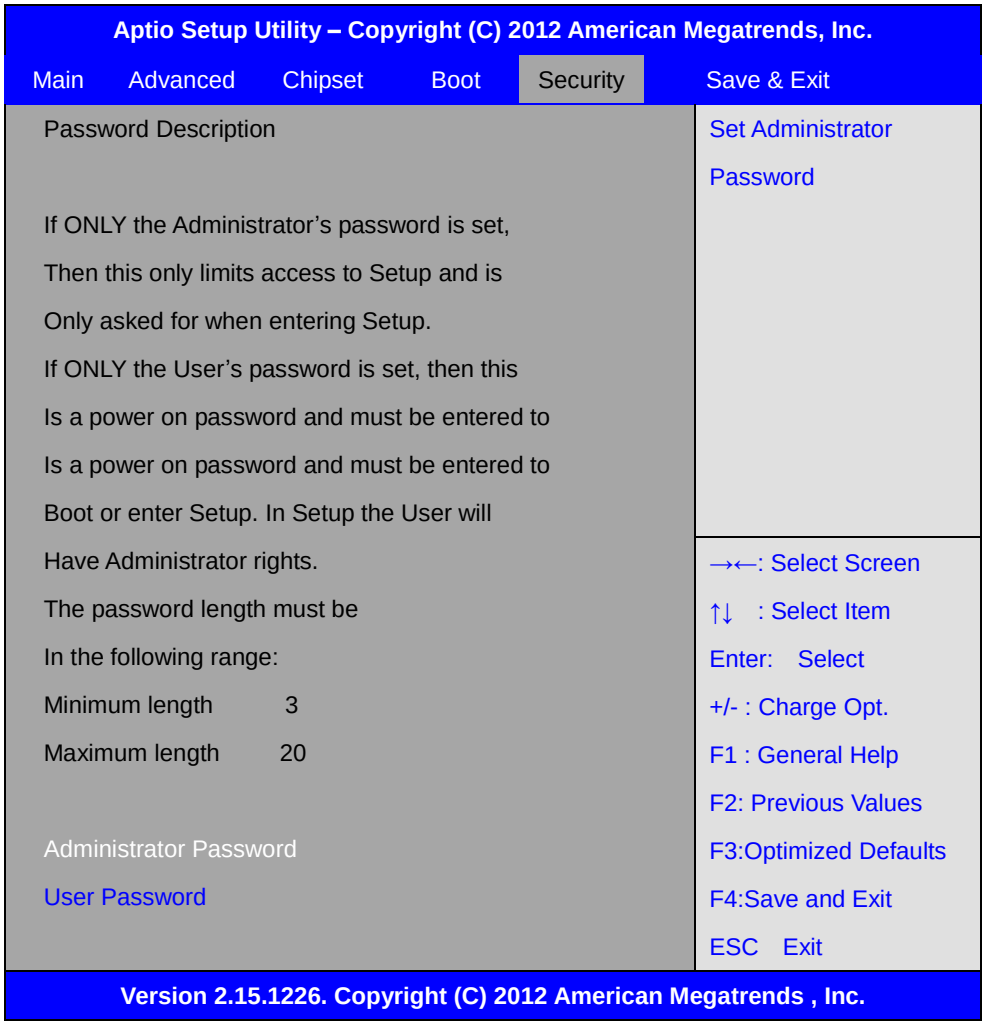
[Legacy only]

Other PCI device ROM

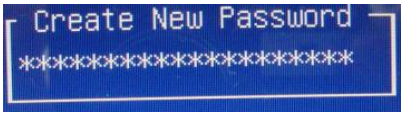
[UEFI OpROM]

[Legacy OpROM]

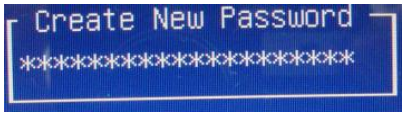
3.7 Security Settings



3.7.1 Administrator Password



3.7.2 User Password



Type the password with up to 20 characters and then press ≺Enter≻ key. This will clear all previously typed CMOS passwords. You will be requested to confirm the password. Type the password again and press ≺Enter≻ key. You may press ≺Esc≻ key to abandon password entry operation.

To clear the password, just press ≺Enter≻ key when password input window pops up. A confirmation message will be shown on the screen as to whether the password will be disabled. You will have direct access to BIOS setup without typing any password after system reboot once the password is disabled.

Once the password feature is used, you will be requested to type the password each time you enter

BIOS setup. This will prevent unauthorized persons from changing your system configurations. Also, the feature is capable of requesting users to enter the password prior to system boot to control unauthorized access to your computer. Users may enable the feature in Security Option of Advanced BIOS Features. If Security Option is set to System, you will be requested to enter the password before system boot and when entering BIOS setup; if Security Option is set to Setup, you will be requested for password for entering BIOS setup.

3.8 Save & Exit Settings

Save Changes and Exit

Save & Exit Setup save Configuration and exit ?

[Yes]

[No]

Discard Changes and Ext

Exit Without Saving Quit without saving?

[Yes]

[No]

Save Changes and Reset

Save & reset Save Configuration and reset?

[Yes]

[No]

Discard Changes and Reset

Reset Without Saving Reset without saving?

[Yes]

[No]

Save Changes

Save Setup Values Save configuration?

[Yes]

[No]

Discard Changes

Load Previous Values Load Previous Values?

[Yes]

[No]

Restore Defaults

Load Optimized Defaults Load optimized Defaults?

[Yes]

[No]

Save user Defaults

Save Values as User Defaults Save configuration?

[Yes]

[No]

Restore user Defaults

Restore User Defaults Restore User Defaults?

[Yes]

[No]

Launch EFI Shell from filesystem device

WARNING Not Found

[ok]

Chapter 4 Installation of Drivers

This chapter describes the installation procedures for software and drivers under the windows XP. The software and drivers are included with the motherboard. The contents include **Intel (R) Chipset NM10 Express, Intel (R) VGA Chipset, Intel 82583V Driver, Realtek ALC662 HD Audio Driver, Touch Panel Driver.**

Installation instructions are given below.

Important Note:

After installing your Windows operating system (Windows XP), you must install first the Intel Chipset Software Installation Utility before proceeding with the installation of drivers.

4.1 Intel Chipset Driver

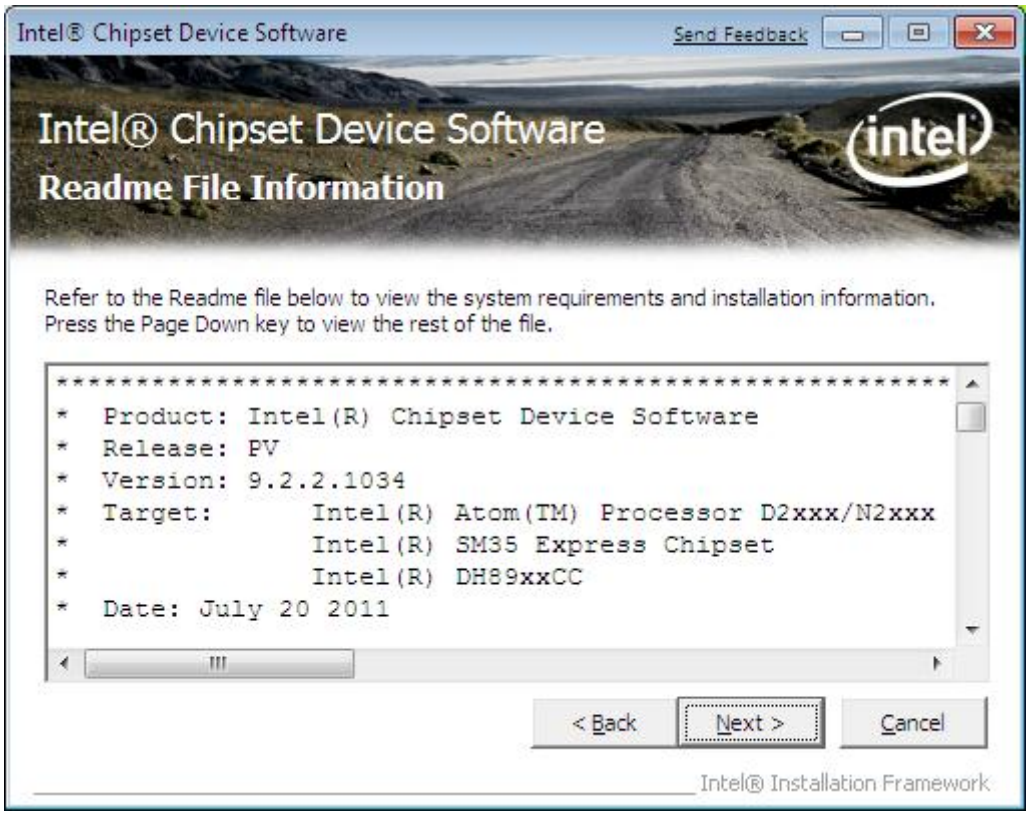
To install the Intel chipset driver, please follow the steps below.

Step 1. Access Industrial Panel PC. Select **Intel(R) Chipset NM10 Express**.

Step 2. Click **Next** to setup program.

Step 3. Read the license agreement. Click **Yes** to accept the terms of the license agreement.

Step 4. Click **Next** to continue.



Step 5. Click **Next**.

Step 6. Select **Yes, I want to restart this computer now.** Click **Finish** then remove any installation media from the drives.

4.2 Intel (R) VGA Chipset Driver

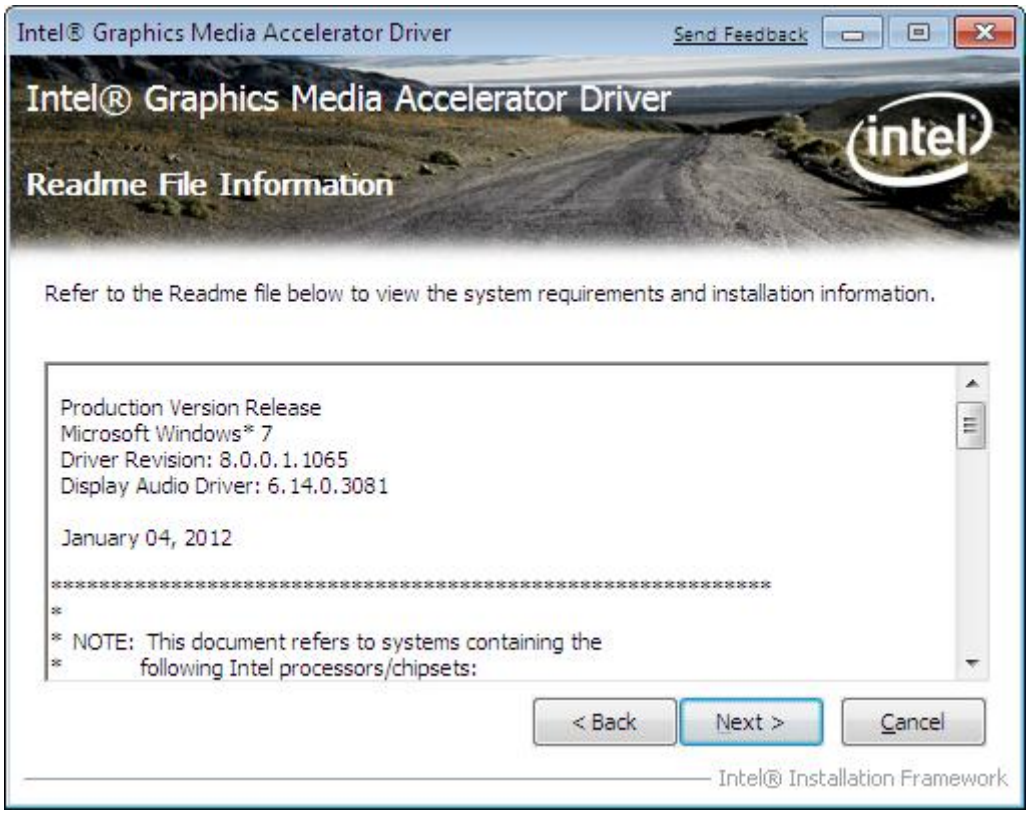
To install the VGA drivers, follow the steps below to proceed with the installation.

Step 1. Select **Intel(R) VGA Chipset Driver.**

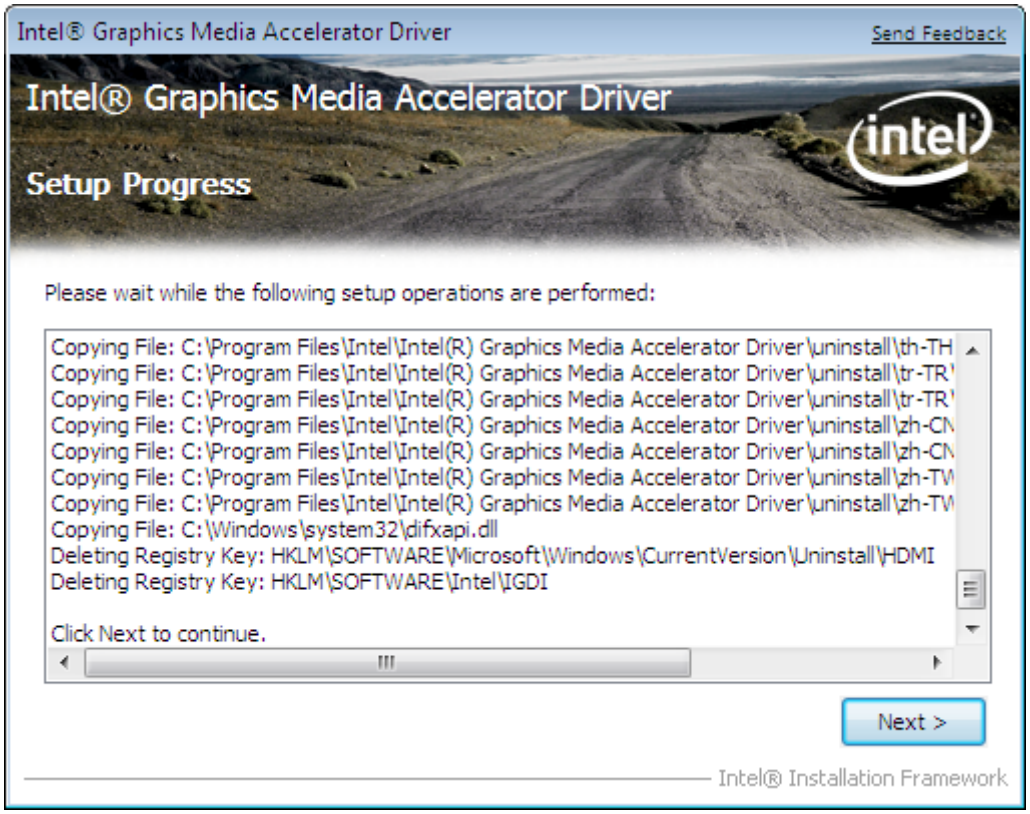
Step 2. Tick Automatically run WinSAT and enable the Windows Aero desktop theme (if supported.) Click **Next** to continue.

Step 3. Read license agreement. Click **Yes** to continue.

Step 4. Click **Next**.



Step 5. Click **Next**.



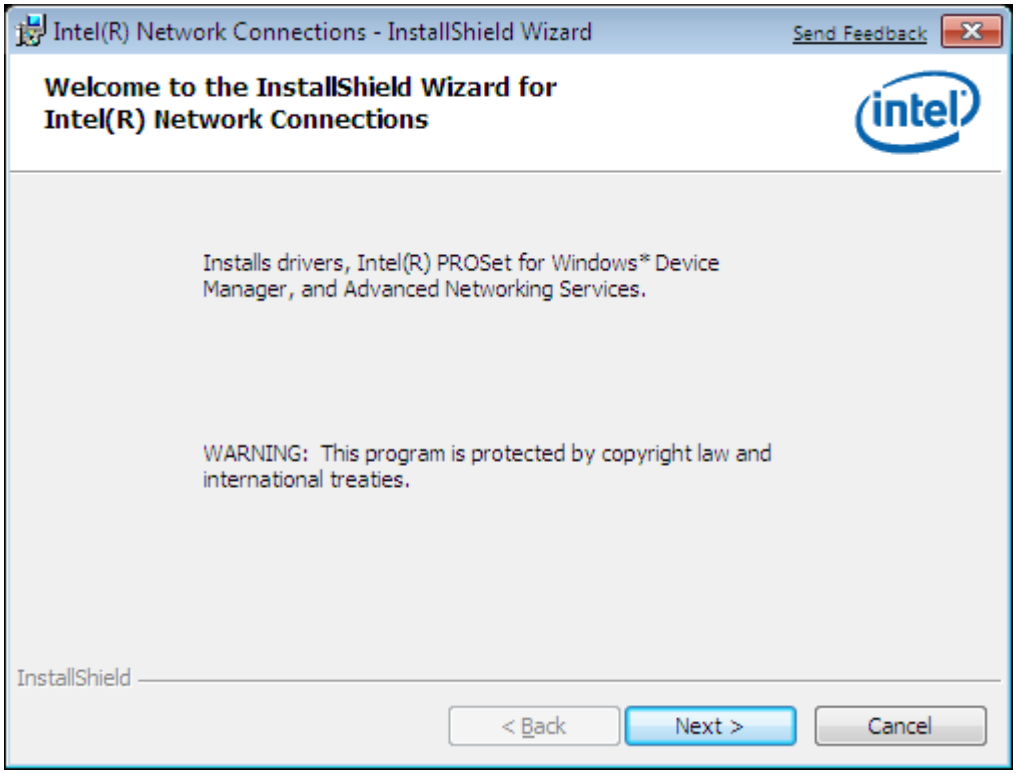
Step 6. Select Yes, I want to restart this computer now. Click **Finish**.

4.3 Intel(R) Network Adapter Driver

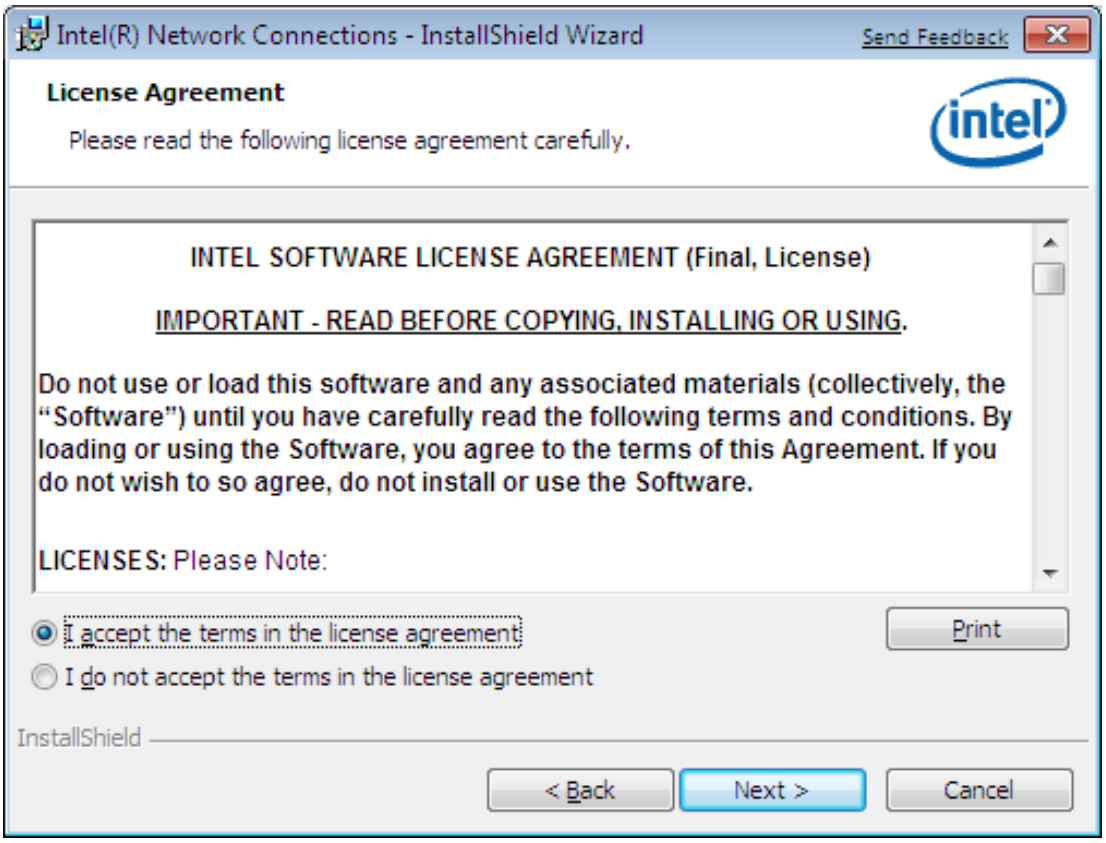
To install the Intel 82574L Network adapter Driver, please follow the steps below.

Step 1. Select **Intel 82583V Driver.**

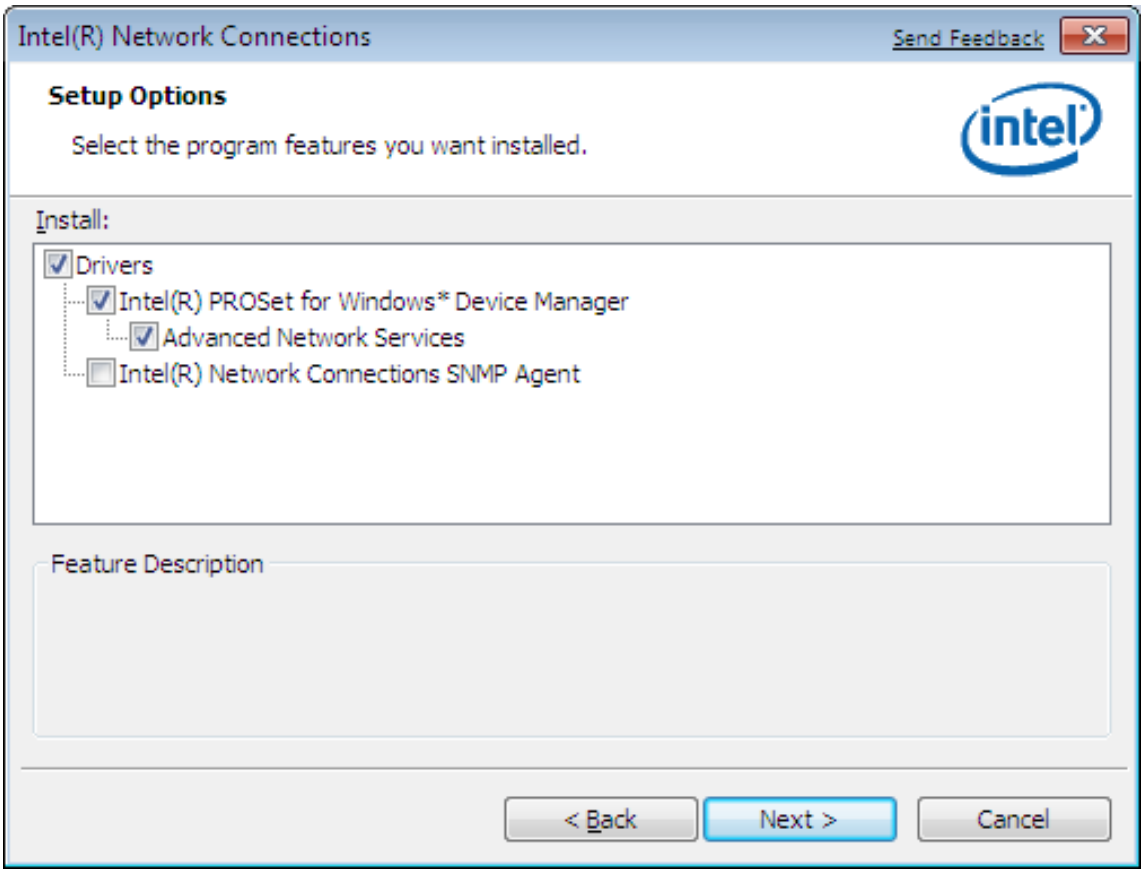
Step 1. Click **Next** to continue.



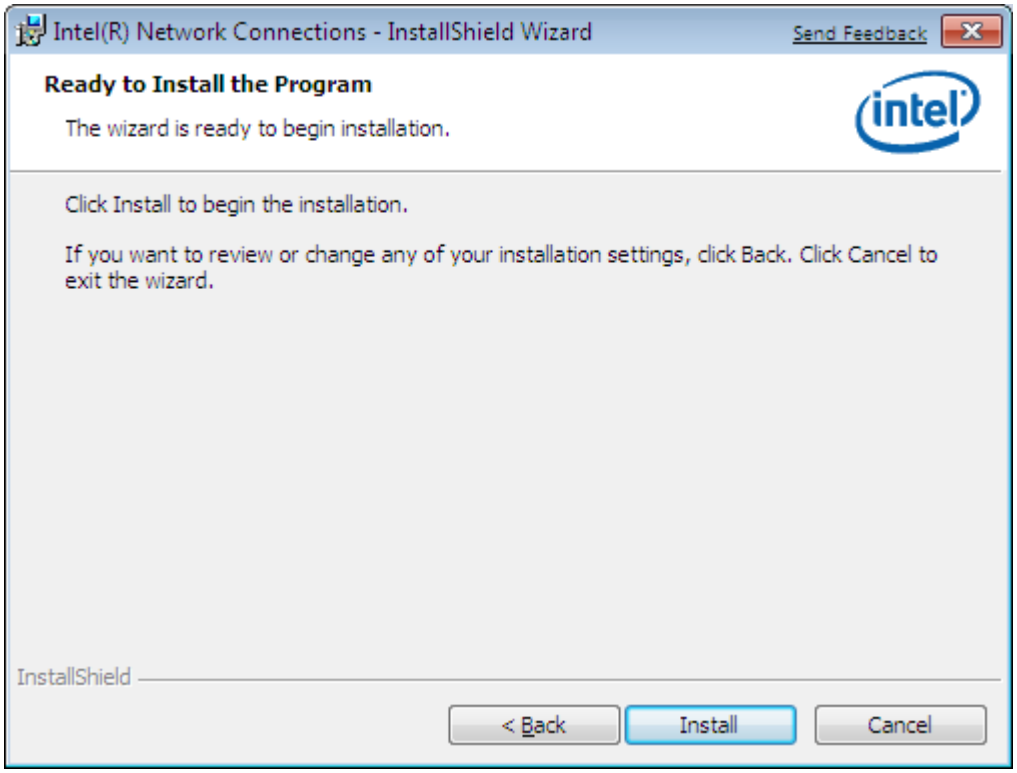
Step 2. Select I accept the terms in the license agreement. Click **Next**.



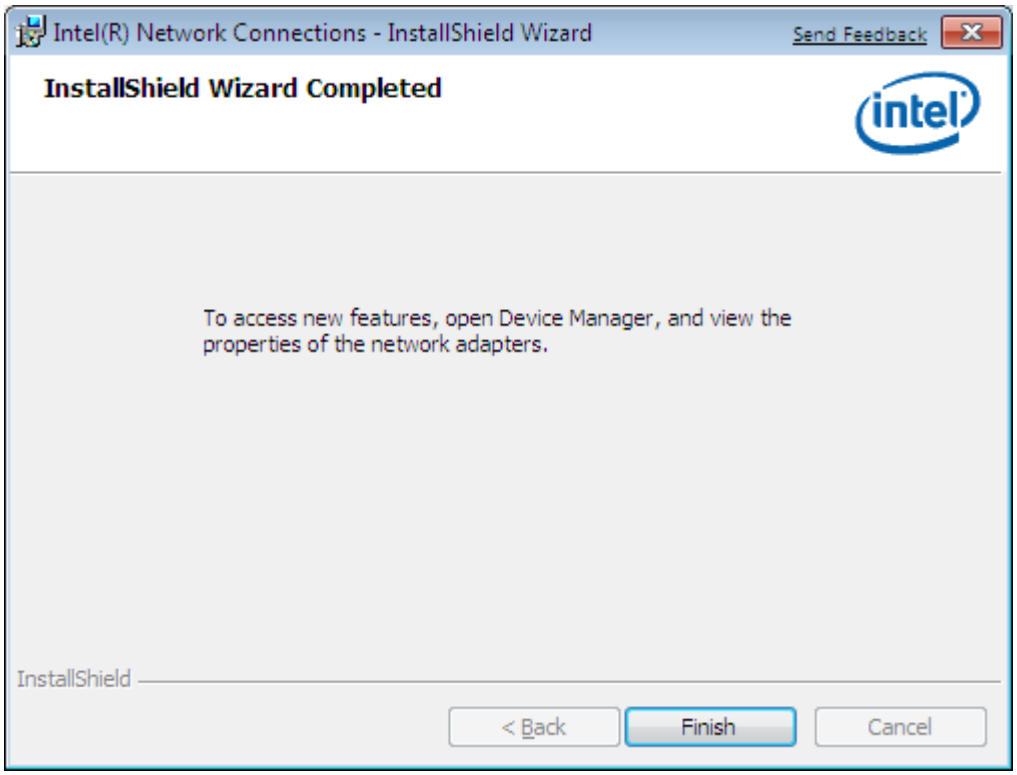
Step 3. Select **Drivers/Intel(R) PROSet for Windows* Device Manager/Advanced Network Services**. Click **Next** to continue.



Step 4. Click **Install** to begin the installation.



Step 5. Click **Finish** to compete the installation.

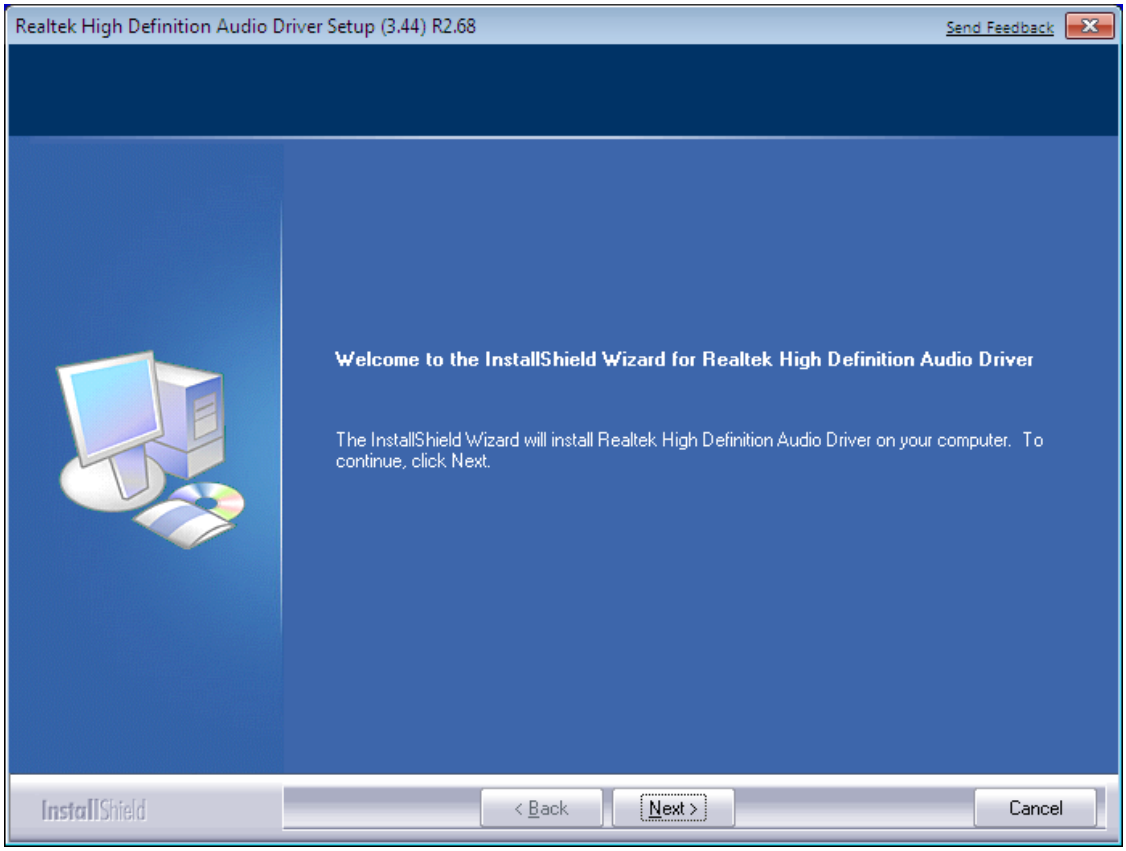


4.4 Realtek HD Audio Driver Installation

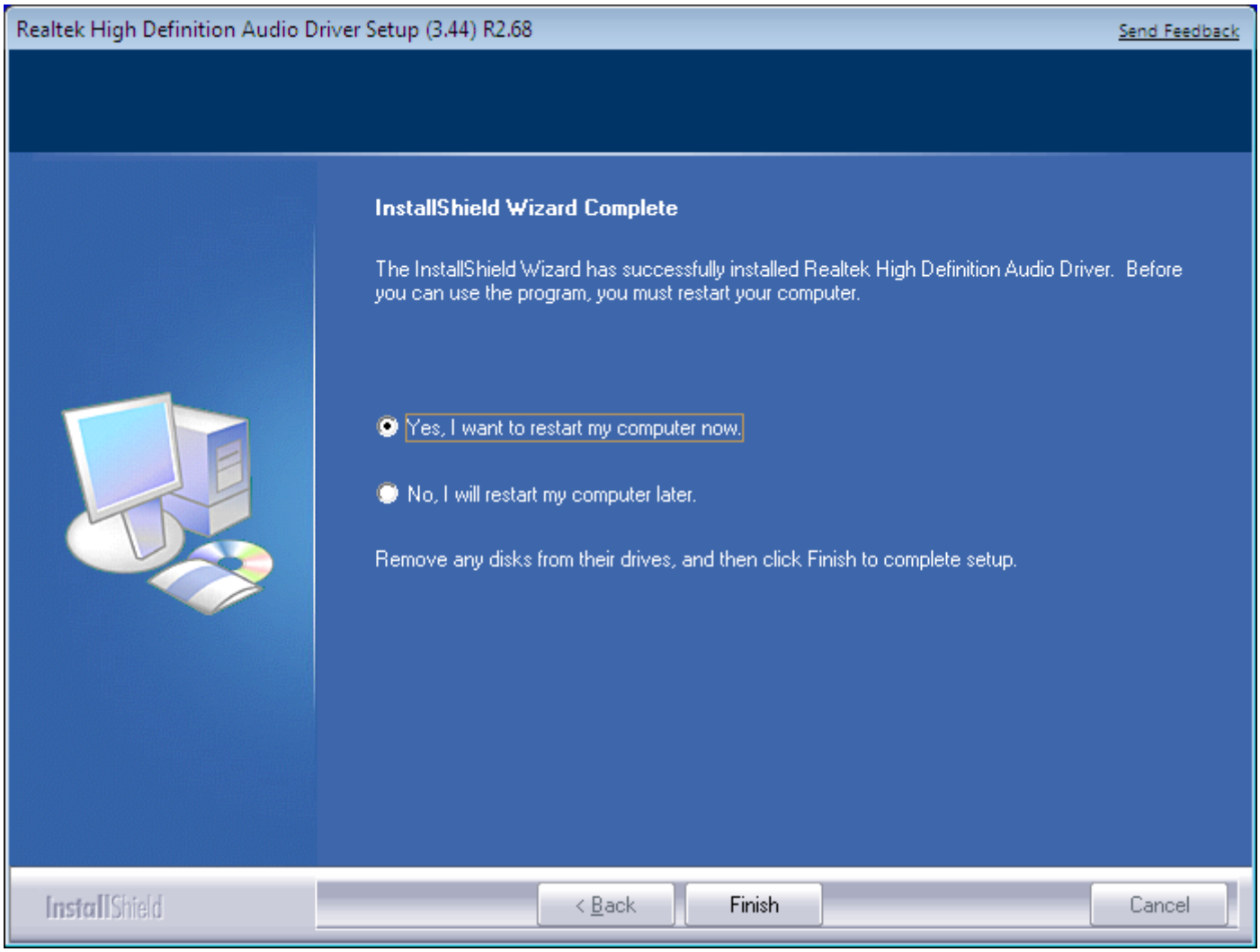
To install the Realtek High Definition (HD) Audio driver, please follow the steps below.

Step 1. Select **Realtek ALC662 HD Audio Codec Driver** from the list.

Step 2. Wait for extracting the files then click **Next** to continue.



Step 3. Select **Yes, I want to restart my computer now.** then click **Finish.**



Chapter 5 Touch Screen Installation

This chapter describes how to install drivers and other software that will allow your PenMount 6000 Controller Board to work with different operating systems.

NOTE: PenMount USB drivers support up to 15 USB controllers.

5.1 Introduction to Touch Screen Controller Board

PenMount 6300 USB control board is a touch screen control board designed for USB interface and specific for 4, 5, 8-wire touch screens. It is designed with USB interface features with multiple devices supporting function. PenMount 6300 control board using PenMount 6000 controller that has been designed for those who may like and all-in-one solution with 10-bit A/D converter built-in to make the total printed circuit board denser, circuit diagram also designed for 12-bit ADC for optional. There are two connectors on this board, one connector is for 4, 5, 8-wire touch screen cable (optional), and another is for 4-pin USB A type cable (optional).

Figure 5.1: Bird's Eye View of Control Board

5.2 Windows 2000/XP/2003/Vista Universal Driver Installation for PenMount 6000 Series

Before installing the Windows 2000/XP driver software, you must have the Windows 2000/XP system installed and running on your computer. You must also have one of the following PenMount 6000 series controller or control boards installed: PM6500, PM6300.

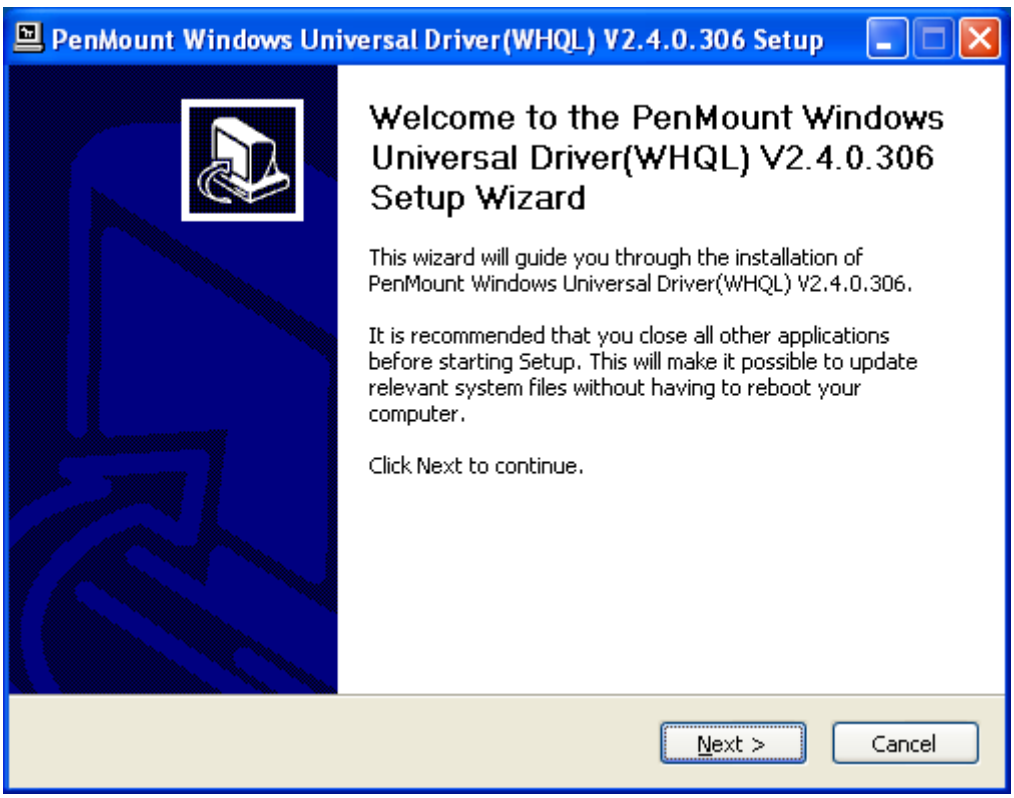
5.2.1 Installing Software

If you have an older version of the PenMount Windows 2000/XP driver installed in your system, please remove it first. Follow the steps below to install the PenMount DMC6000 Windows 2000/XP driver.

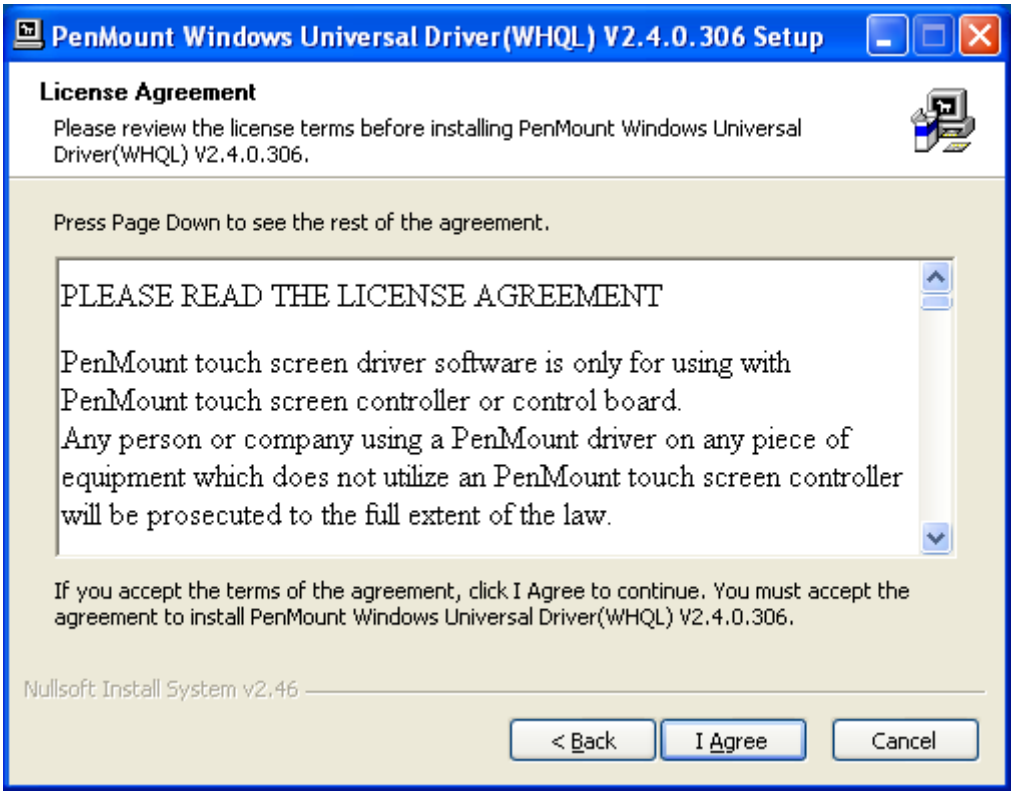
Step 1. Please make sure your PenMount 6000 device had plugged in advance. If your device uses RS232 interface, please plugged in before the machine is turned on. When the system first detects the controller board, a screen appears that shows “Unknown Device”. Do not use this hardware wizard. Press Cancel.

Step 2. Insert the Aplex product CD install **setup.exe.** the screen below would appear. Se touch panel driver

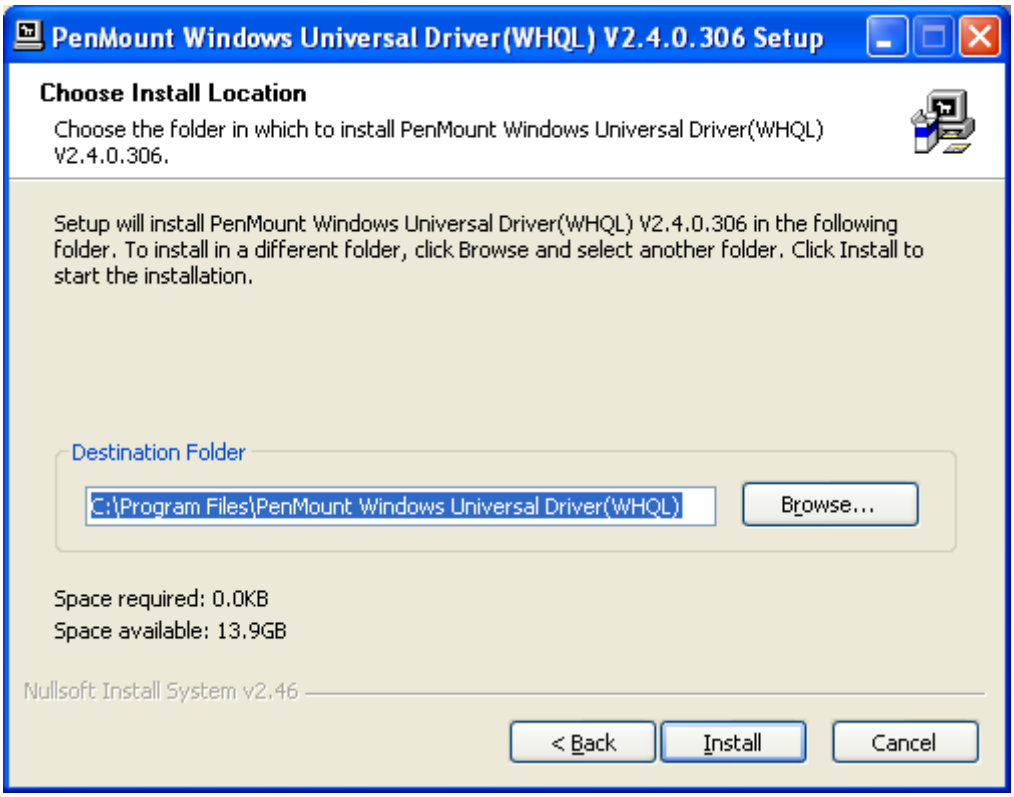
Step 3. Click **Next** to continue.



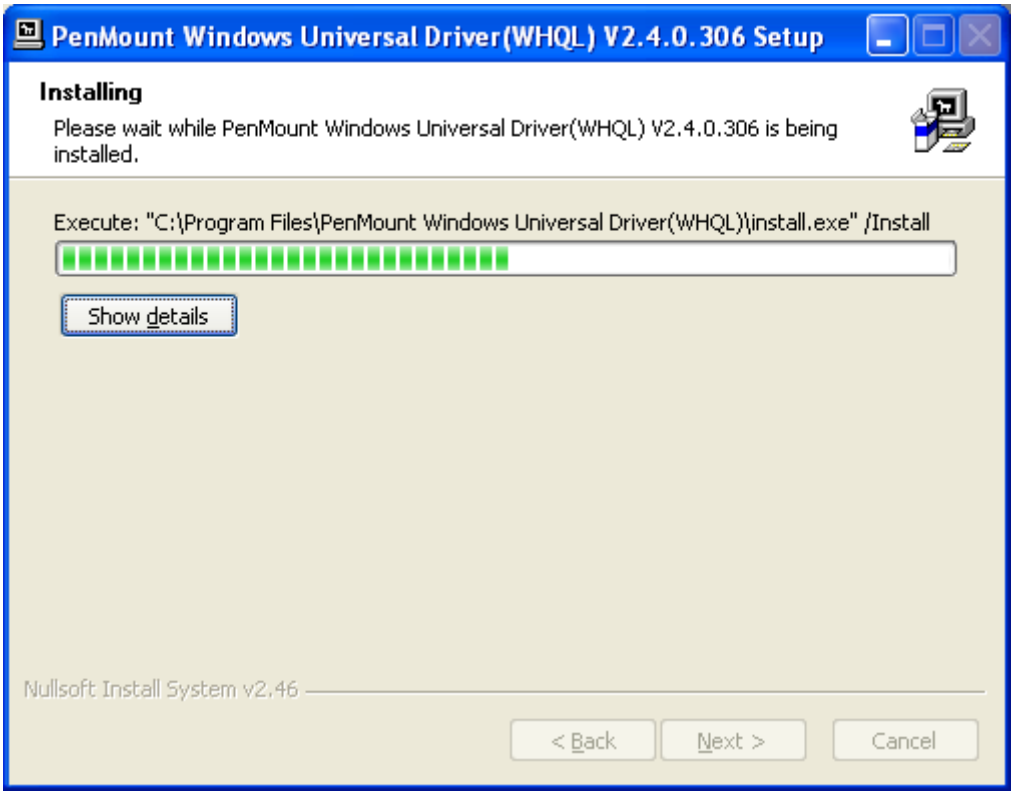
Step 4. Read the license Agreement. Click **I agree** to agree the license agreement.



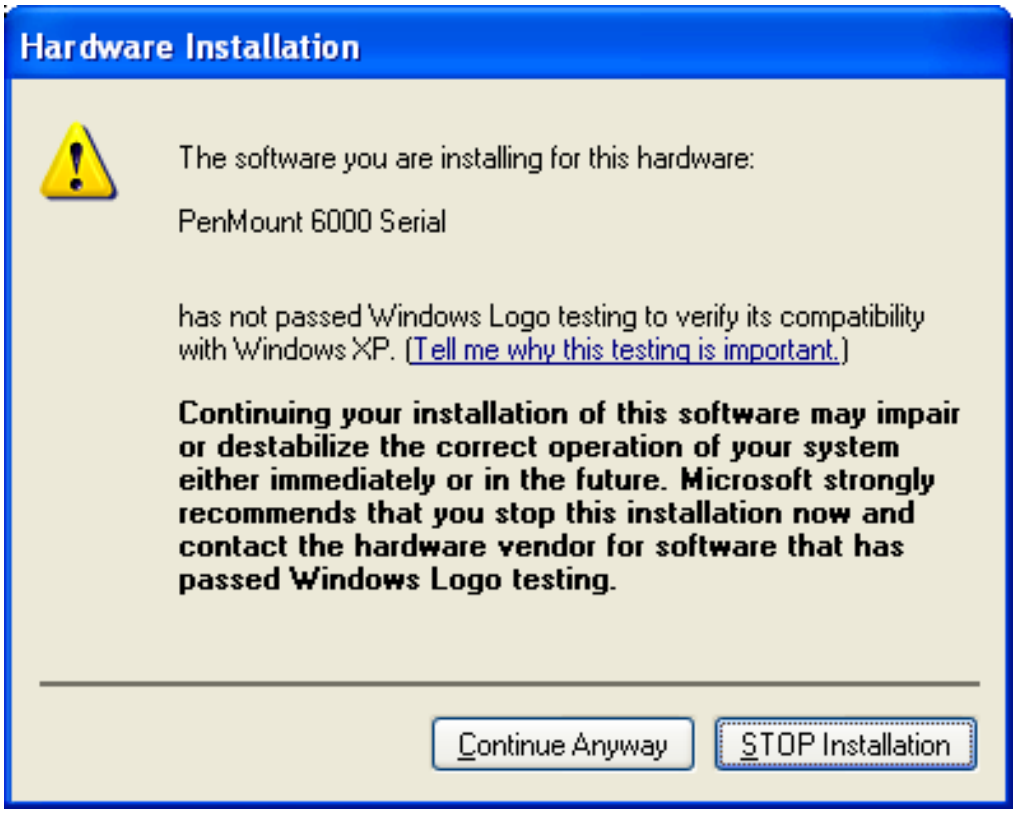
Step 5. Choose the folder in which to install PenMount Windows Universal Driver. Click **Install** to start the installation.



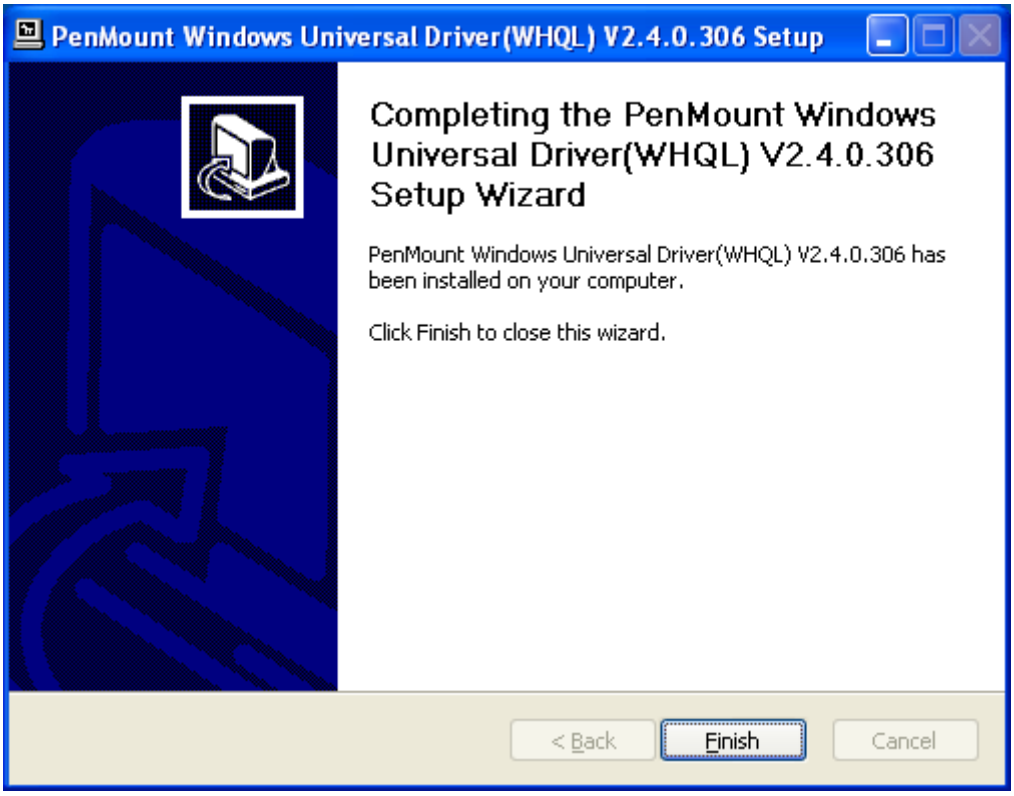
Step 6. Wait for installation. Then click **Next** to continue.



Step 7. Click **Continue Anyway**.



Step 8. Click **Finish** to compete installation.



5.2.2 Software Functions

Upon rebooting, the computer automatically finds the new 6000 controller board. The touch screen is connected but not calibrated. Follow the procedures below to carry out calibration.

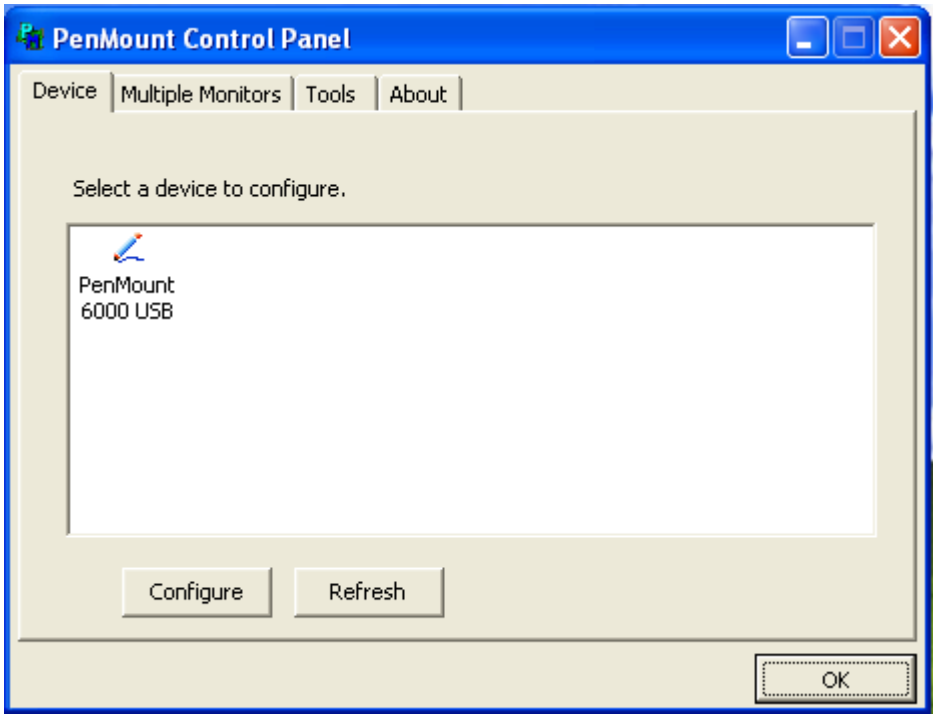
1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, select a device to “Calibrate.”

PenMount Control Panel

The functions of the PenMount Control Panel are **Device, Multiple Monitors, Tools** and **About**, which are explained in the following sections.

Device

In this window, you can find out that how many devices are detected on your system.



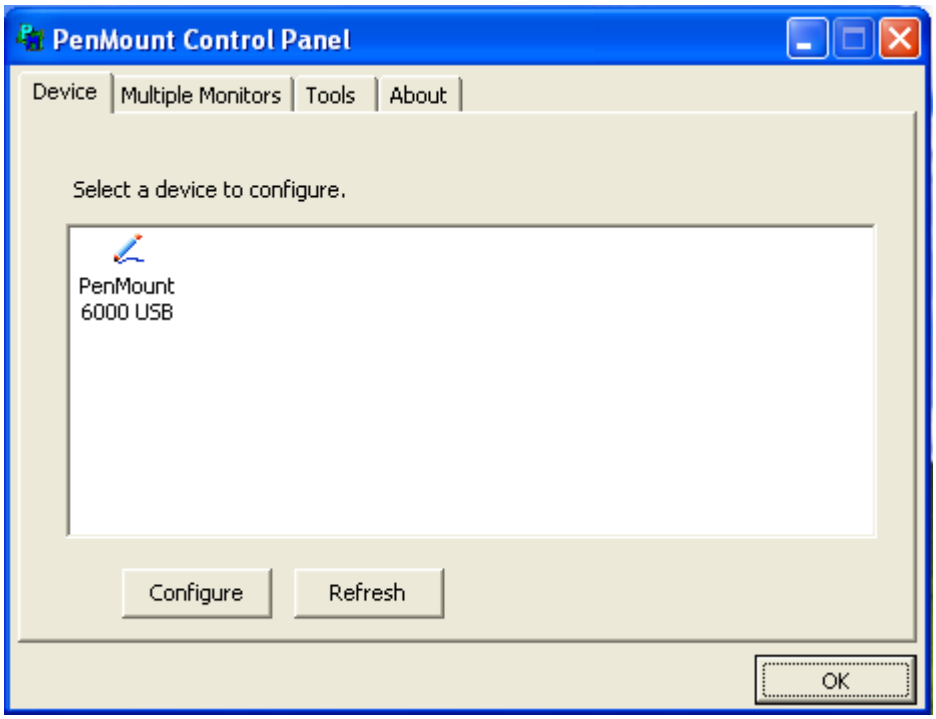
Calibrate

This function offers two ways to calibrate your touch screen. ‘Standard Calibration’ adjusts most touch screens. ‘Advanced Calibration’ adjusts aging touch screens.

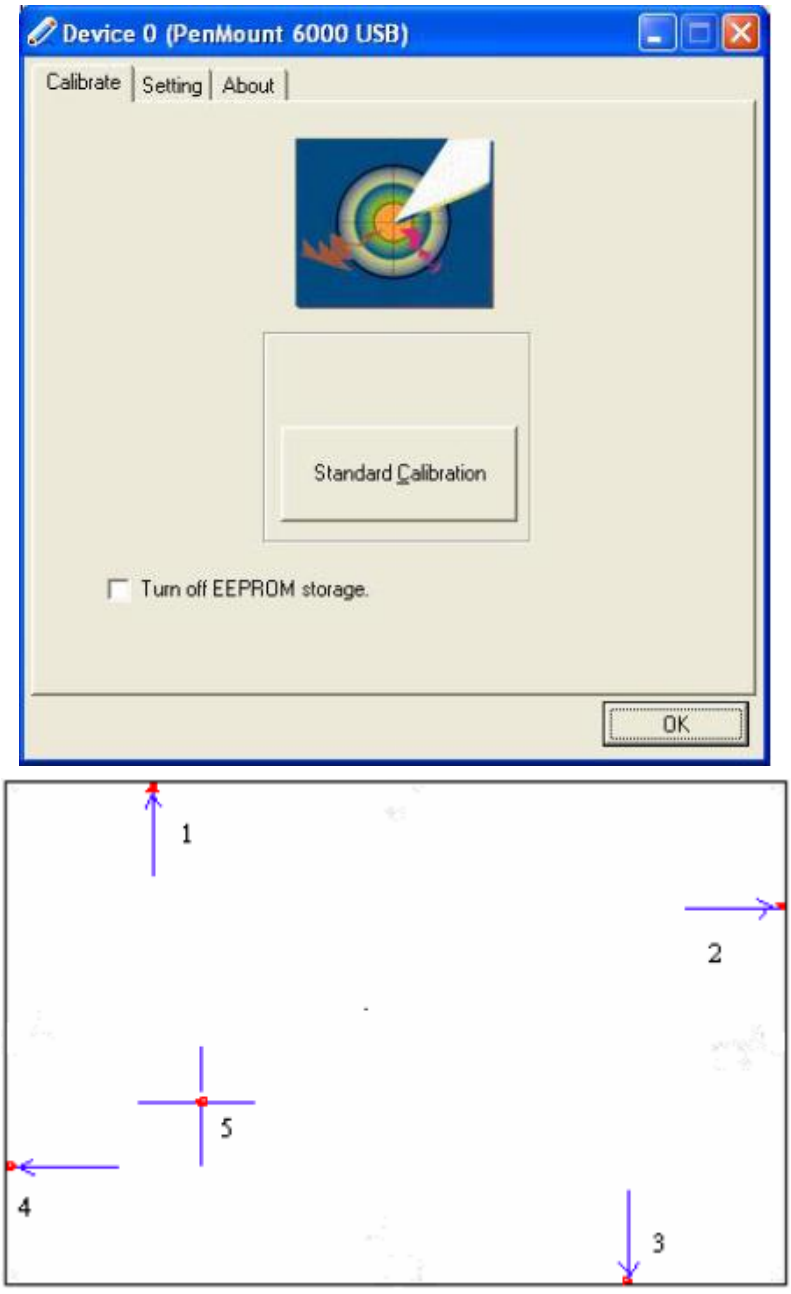
Standard Calibration	**Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’.**

Advanced Calibration	**Advanced Calibration uses 4, 9, 16 or 25 points to effectively calibrate touch panel linearity of aged touch screens. Click this button and touch the red squares in sequence with a stylus. To skip, press ESC'.**
Command Calibration	**Command call calibration function. Use command mode call calibration function, this can uses Standard, 4, 9, 16 or 25 points to calibrate** E.g. Please run ms-dos prompt or command prompt c:\Program Files\PenMount Universa Driver\Dmcctrl.exe -calibration 0 (Standard Calibration) Dmcctrl.exe - calibration ($) 0= Standard Calibration 4=Advanced Calibration 4 9=Advanced Calibration 9 16=Advanced Calibration 16 25=Advanced Calibration 25

Step 1. Please select a device then click **Configure**. You can also double click the device too.

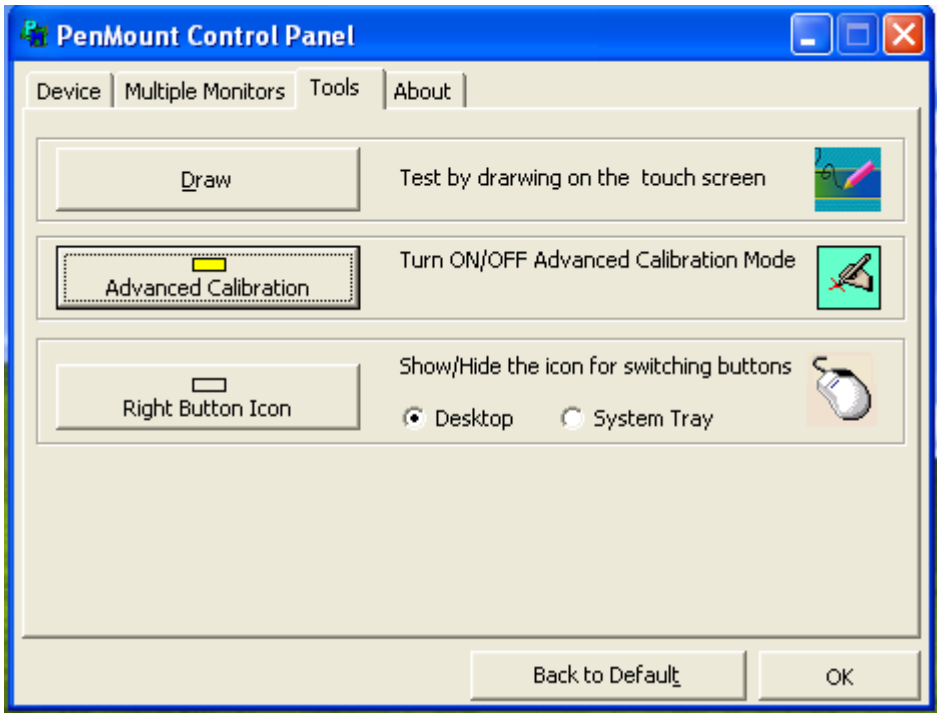


Step 2. Click **Standard Calibration** to start calibration procedure

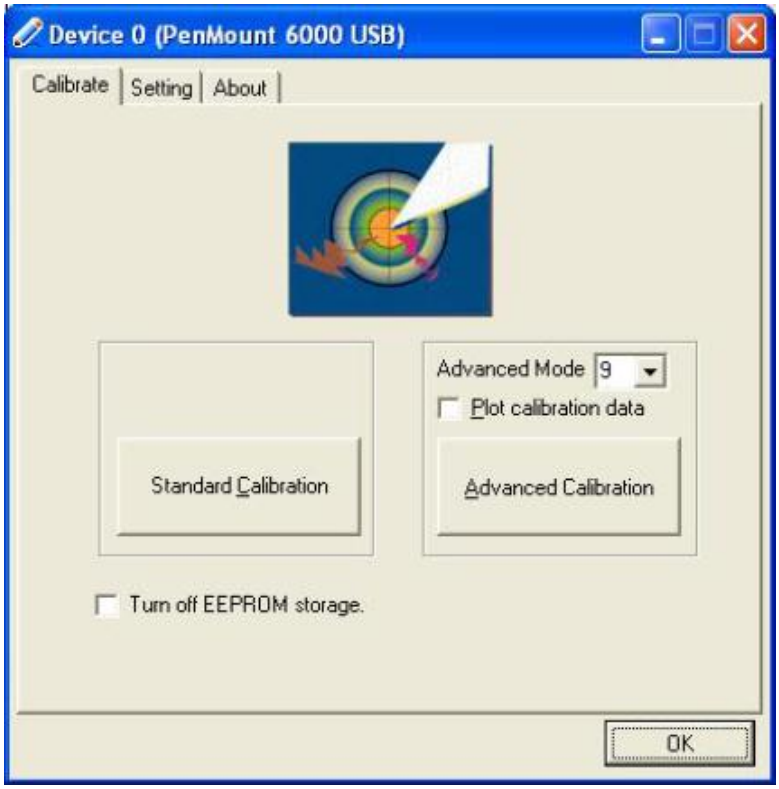


NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:

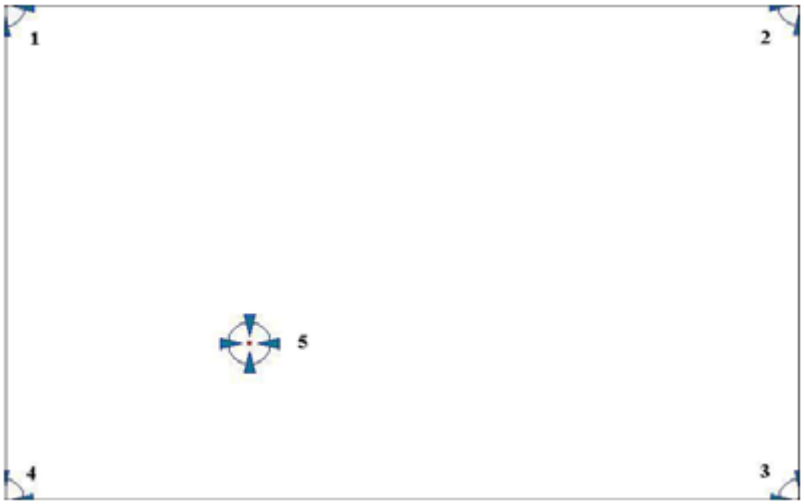
Step 3. Come back to PenMount Control Panel and select **Tools** then Click **Advanced Calibration**.



Step 4. Select **Device** to calibrate, then you can start to do “Advanced Calibration”.



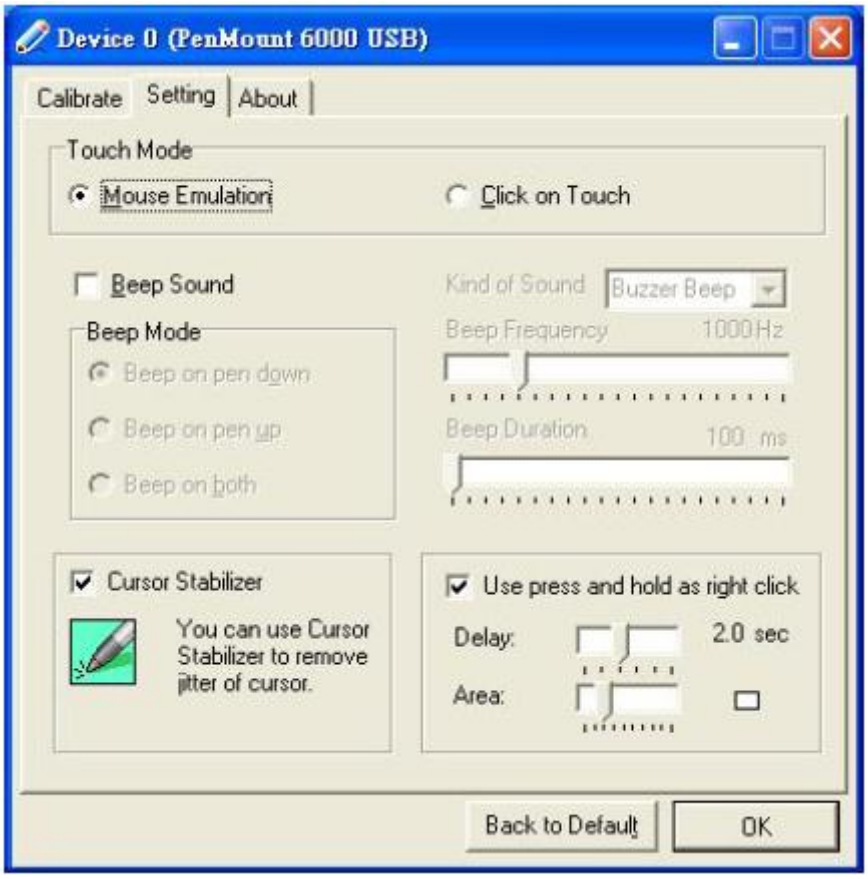
NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.



Plot Calibration Data	**Check this function and a touch panel linearity comparison graph appears when you have finished Advanced Calibration. The blue lines show linearity before calibration and black lines show linearity after calibration.**
Turn off EEPROM storage	**The function disable for calibration data to write in Controller. The default setting is Enable**

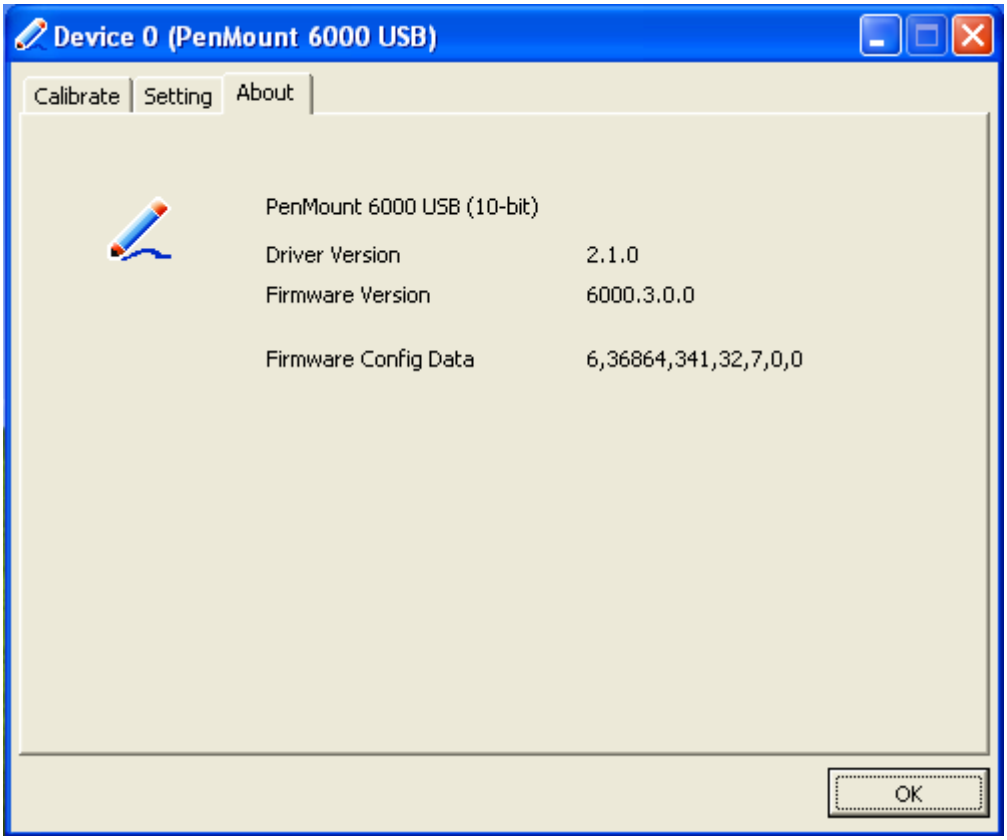
Setting

Touch Mode	**This mode enables and disables the mouse's ability to drag on-screen icons—useful for configuring POS terminals.** **Mouse Emulation – Select this mode and the mouse functions as normal and allows dragging of icons.** **Click on Touch – Select this mode and the mouse only provides a click function, and dragging is disabled**
Beep Sound	**Enable Beep Sound – turns beep function on and off** **Beep on Pen Down – beep occurs when pen comes down** **Beep on Pen Up – beep occurs when pen is lifted up** **Beep on both – beep occurs when comes down and lifted up** **Beep Frequency – modifies sound frequency** **Beep Duration – modifies sound duration**
Cursor Stabilizer	**Enable the function support to prevent cursor shake.**
Use press and hold as right click	**You can set the time out and area for you need**



About

This panel displays information about the PenMount controller and driver version.



Multiple Monitors

Multiple Monitors supports two to six touchscreen displays for one system. PenMount drivers for Windows 2000, XP 32/64bit, and 2003 support **Multiple Monitors**. This function supports from two to six touchscreen displays for one system. Each monitor requires its own PenMount touchscreen control board, either installed inside the displayor in a central unit. The PenMount control boards must be connected to the computer COM ports via the RS-232 interface. Driver installation procedures are the same as for a single monitor. Multiple Monitors supports the following modes:

Windows Extends Monitor Function
Matrox DualHead Multi-Screen Function
nVidia nView Function

NOTE: The Multiple Monitor function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the rotating function is disabled.

Requirements

Before using the **Multiple Monitors** function you need the following:

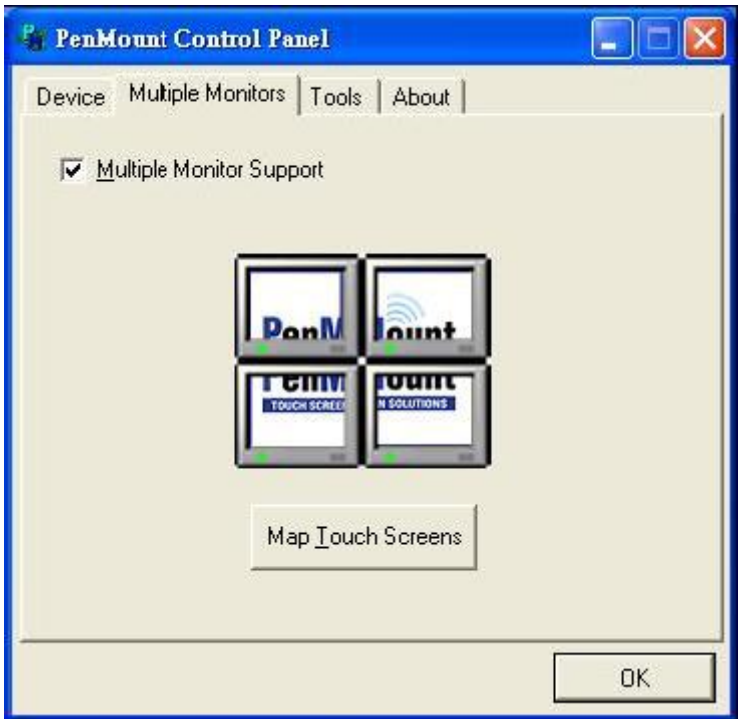
* A display card that supports multiple monitors such as the Matrox, nVidia, ATI, etc.
* (Two or more display cards supported by Windows are also ok.)
* Two or more touchscreens
* Two or more Serial Ports or USB ports.
* Two or more PenMount 6000 control boards such as 6200x, 6202x,6300 or 6500.
* The PenMount Windows Universal Driver (for 2000/XP/2003/VISTA/7).

Before using **Multiple Monitors** you must have two or more monitors that are in **extension mode**. For display cards that support multiple monitors, we suggest you consider Matrox, nVidia, or ATI cards and inquire about operation and usability issues.

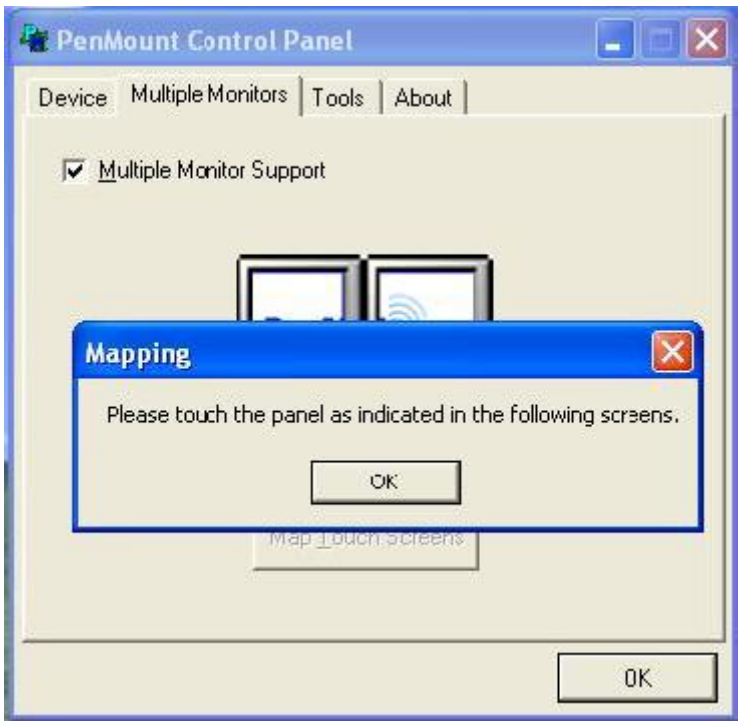
Note: Before you can use multiple monitors you need to map each monitor.

Enable the multiple display function as follows:

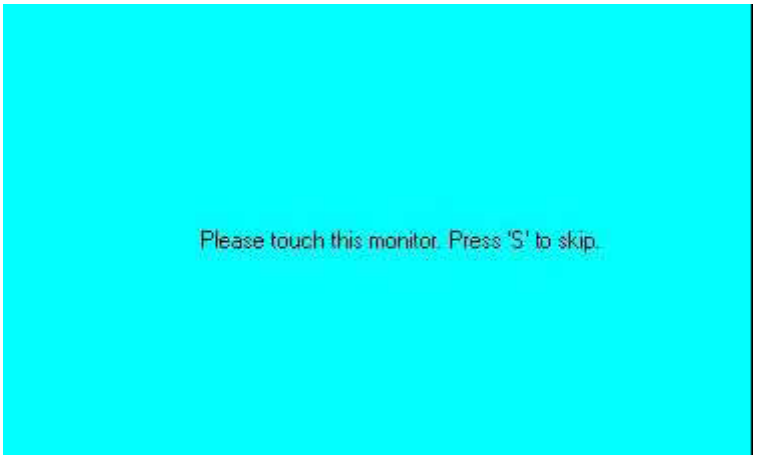
Step 1.In PenMount **Control Panel**, under **Multiple Monitors** tag, check the "**Multiple Monitor Support**" box. Then click "**Map Touchscreens**" to assign touch controllers to displays.



Step 2. When the mapping screen message appears, click **OK.**



Step 3. Touch each screen as it displays **Please touch this monitor. Press ‘S’ to skip** Following this sequence and touching each screen is called **mapping the touch screens**.



Step 4. After the setting procedure is finished, maybe you need to calibrate for each panel and controller.

NOTES:

1. If you used a single VGA output for multiple monitors, please do not use the **Multiple Monitors** function. Just follow the regular procedure for calibration on each of your desktop monitors.

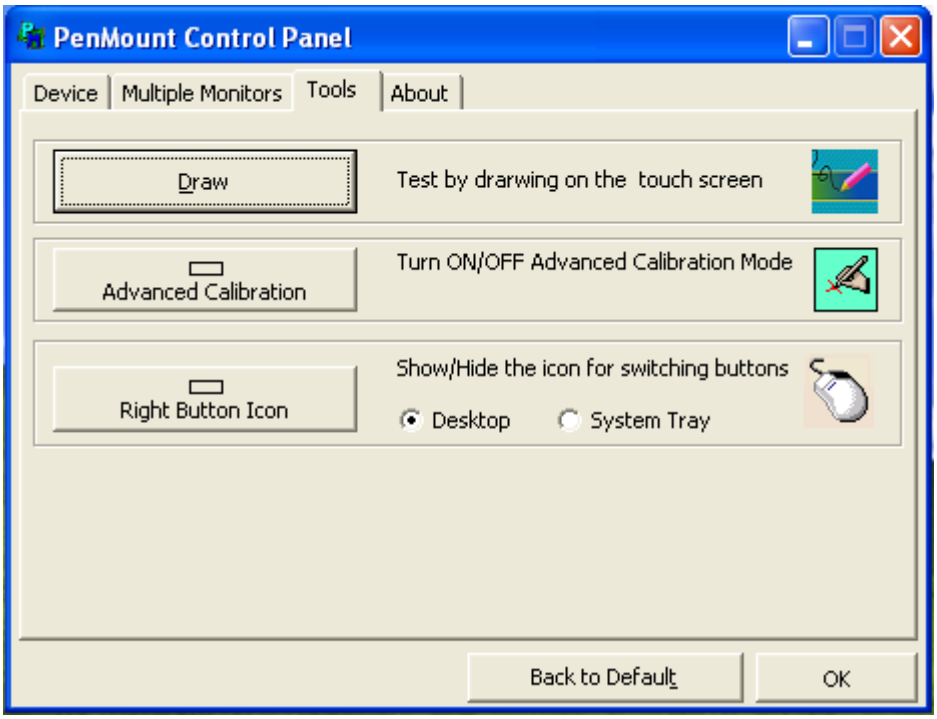
2. The Rotating function is disabled if you use the Multiple Monitors function.

3. If you change the resolution of display or screen address, you have to redo **Map Touch Screens** so the system understands where the displays are.

4. If you more monitor mapping one touch screen, **Please press ‘S’ to skip mapping step.**

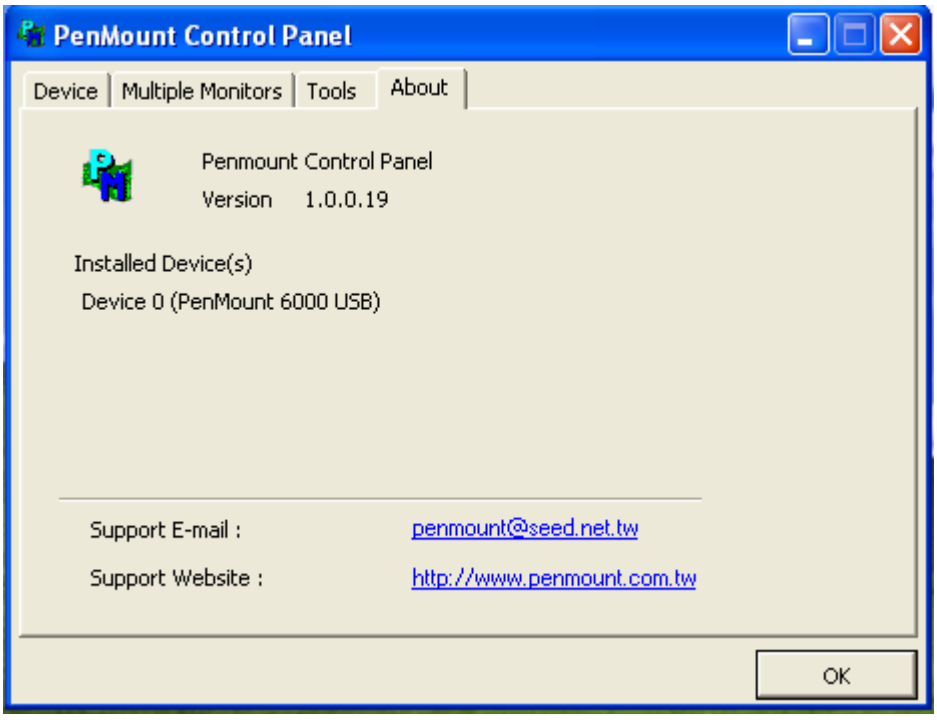
Tools

Draw	**Tests or demonstrates the PenMount touch screen operation.**
Advanced Calibration	**Enable Advanced Calibration function**
Right Button Icon	**Enable right button function. The icon can show on Desktop or System Tray (menu bar).**



About

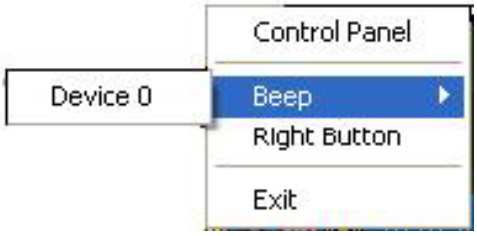
You can see how many devices of PenMount controller that are plugged to your system



PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows 2000/XP system when you turn on PenMount Monitor in PenMount Utilities.

PenMount Monitor has the following function



Control Panel	**Open Control Panel Windows**
Beep	**Setting Beep function for each device**
Right Button	**When you select this function, a mouse**  **icon appears in the right-bottom of the screen. Click this icon to switch between Right and Left Button functions.**
Exit	**Exits the PenMount Monitor function.**

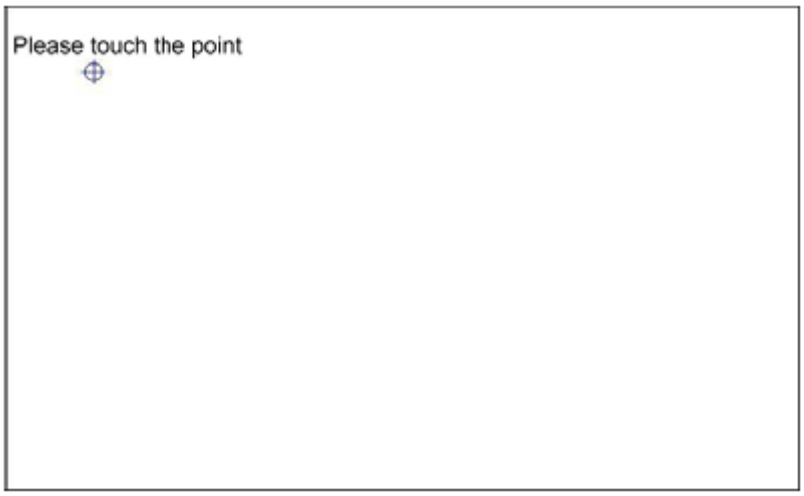
PenMount Rotating Functions

The PenMount driver for Windows 2000/XP supports several display rotating software packages. Windows Me/2000/XP support display rotating software packages such as:

- Portrait's Pivot Screen Rotation Software
- ATI Display Driver Rotate Function
- nVidia Display Driver Rotate Function
- SMI Display Driver Rotate Function
- Intel 845G/GE Display Driver Rotate Function

Configuring the Rotate Function

1. Install the rotation software package.
2. Choose the rotate function (0°, 90°, 180°, 270°) in the 3rd party software. The calibration screen appears automatically. Touch this point and rotation is mapped.



NOTE: The Rotate function is disabled if you use Monitor Mapping